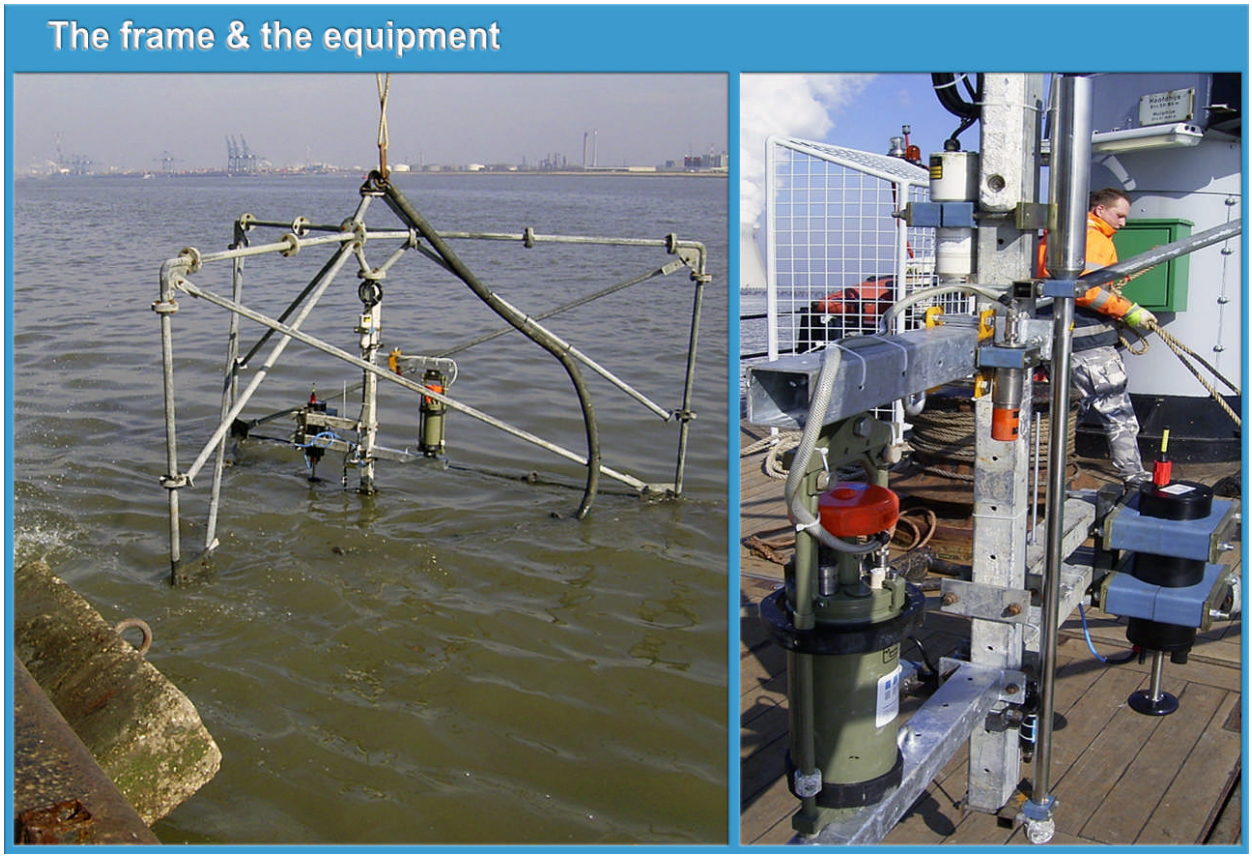
VLAAMSE OVERHEID

DEPARTEMENT MOBILITEIT EN OPENBARE WERKEN
WATERBOUWKUNDIG LABORATORIUM

# Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing

Bestek 16EB/05/04




## Deelrapport 2.17: Zout – en slibverdeling Deurganckdok & frame metingen 20/09/2007 – 18/12/2007

## Report 2.17: Salt – Silt distribution & frame measurements Deurganckdok 20/09/2007 – 18/12/2007

26 March 2008

I/RA/11283/07.093/MSA

i.s.m.

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# TABLE OF CONTENTS

# APPENDICES

# LIST OF TABLES



# LIST OF FIGURES

# 1. INTRODUCTION

## 1.1. The assignment

This report is part of the set of reports describing the results of the long-term measurements conducted in Deurganckdok aiming at the monitoring and analysis of silt accretion. This measurement campaign is an extension of the study "Extension of the study about density currents in the Beneden Zeeschelde" as part of the Long Term Vision for the Scheldt estuary. It is complementary to the study 'Field measurements high-concentration benthic suspensions (HCBS 2)'.

The terms of reference for this study were prepared by the 'Departement Mobiliteit en Openbare Werken van de Vlaamse Overheid, Afdeling Waterbouwkundig Laboratorium' (16EB/05/04). The repetition of this study was awarded to International Marine and Dredging Consultants NV in association with WL|Delft Hydraulics and Gems International on 10/01/2006. The project term was prolonged with an extra year from April 2007 till March 2008, 'Opvolging aanslibbing Deurganckdok'.

Waterbouwkundig Laboratorium– Cel Hydrometrie Schelde provided data on discharge, tide, salinity and turbidity along the river Scheldt and provided survey vessels for the long term and through tide measurements. Afdeling Maritieme Toegang provided maintenance dredging data. Agentschap voor Maritieme Dienstverlening en Kust – Afdeling Kust and Port of Antwerp provided depth sounding measurements.

The execution of the study involves a twofold assignment:

- Part 1: Setting up a sediment balance of Deurganckdok covering a period of one year, i.e. 04/2007 – 03/2008
- Part 2: An analysis of the parameters contributing to siltation in Deurganckdok

## 1.2. Purpose of the study

The Lower Sea Scheldt (Beneden Zeeschelde) is the stretch of the Scheldt estuary between the Belgium-Dutch border and Rupelmonde, where the entrance channels to the Antwerp sea locks are located. The navigation channel has a sandy bed, whereas the shallower areas (intertidal areas, mud flats, salt marshes) consist of sandy clay or even pure mud sometimes. This part of the Scheldt is characterized by large horizontal salinity gradients and the presence of a turbidity maximum with depth-averaged concentrations ranging from 50 to 500 mg/l at grain sizes of 60 - 100 $\mu$m. The salinity gradients generate significant density currents between the river and the entrance channels to the locks, causing large siltation rates. It is to be expected that in the near future also the Deurganckdok will suffer from such large siltation rates, which may double the amount of dredging material to be dumped in the Lower Sea Scheldt.

Results from the study may be interpreted by comparison with results from the HCBS and HCBS2 studies covering the whole Lower Sea Scheldt. These studies included through-tide measurement campaigns in the vicinity of Deurganckdok and long term measurements of turbidity and salinity in and near Deurganckdok.

The first part of the study focuses on obtaining a sediment balance of Deurganckdok. Aside from natural sedimentation, the sediment balance is influenced by the maintenance and capital dredging works. This involves sediment influx from capital dredging works in the Deurganckdok, and internal relocation and removal of sediment by maintenance dredging works. To compute a sediment balance an inventory of bathymetric data (depth soundings), density measurements of the

deposited material and detailed information of capital and maintenance dredging works will be made up.

The second part of the study is to gain insight in the mechanisms causing siltation in Deurganckdok, it is important to follow the evolution of the parameters involved, and this on a long and short term basis (long term & through-tide measurements). Previous research has shown the importance of water exchange at the entrance of Deurganckdok as essential for understanding sediment transport between the dock and the Scheldt river.

## 1.3. Overview of the Reports

Reports of the project 'Opvolging aanslibbing Deurganckdok 2' for the period April 2006 – March 2008 are summarized in Table 1-1.

Reports of the measurement campaign HCBS2 for which the winter and summer campaign has been carried out simultaneously with measurements in this report are listed in APPENDIX F.

*Table 1-1: Overview of Deurganckdok Reports*

| Report | Description |
|---|---|
| **Sediment Balance: Bathymetry surveys, Density measurements, Maintenance and construction dredging activities** | |
| 1.1 | Sediment Balance: Three monthly report 1/4/2006 – 30/06/2006 (I/RA/11283/06.113/MSA) |
| 1.2 | Sediment Balance: Three monthly report 1/7/2006 – 30/09/2006 (I/RA/11283/06.114/MSA) |
| 1.3 | Sediment Balance: Three monthly report 1/10/2006 – 31/12/2006 (I/RA/11283/06.115/MSA) |
| 1.4 | Sediment Balance: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.116/MSA) |
| 1.5 | Annual Sediment Balance (I/RA/11283/06.117/MSA) |
| 1.6 | Sediment balance Bathymetry: 2005 – 3/2006 (I/RA/11283/06.118/MSA) |
| 1.10 | Sediment Balance: Three monthly report 1/4/2007 - 30/06/2007(I/RA/11283/07.081/MSA) |
| 1.11 | Sediment Balance: Two monthly report 1/7/2007 – 31/08/2007 (I/RA/11283/07.082/MSA) |
| 1.12 | Sediment Balance: Four monthly report 1/09/2007 – 31/12/2007 (I/RA/11283/07.083/MSA) |
| 1.13 | Sediment Balance: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/07.084/MSA) |
| 1.14 | Annual Sediment Balance (I/RA/11283/07.085/MSA) |
| **Factors contributing to salt and sediment distribution in Deurganckdok: Salt-Silt (OBS3A) & Frame measurements, Through tide measurements (SiltProfiling & ADCP) & Calibrations** | |
| 2.1 | Through tide measurement Siltprofiler 21/03/2006 Laure Marie (I/RA/11283/06.087/WGO) |
| 2.2 | Through tide measurement Siltprofiler 26/09/2006 Stream (I/RA/11283/06.068/MSA) |

| Report | Description |
|---|---|
| 2.3 | Through tide measurement Sediview spring tide 22/03/2006 Veremans (I/RA/11283/06.110/BDC) |
| 2.4 | Through tide measurement Sediview spring tide 27/09/2006 Parel 2 (I/RA/11283/06.119/MSA) |
| 2.5 | Through tide measurement Sediview neap tide (to be scheduled) (I/RA/11283/06.120/MSA) |
| 2.6 | Salinity-Silt distribution & Frame Measurements Deurganckdok 13/3/2006 – 31/05/2006 (I/RA/11283/06.121/MSA) |
| 2.7 | Salinity-Silt distribution & Frame Measurements Deurganckdok 15/07/2006 – 31/10/2006 (I/RA/11283/06.122/MSA) |
| 2.8 | Salinity-Silt distribution & Frame Measurements Deurganckdok 15/01/2007 – 15/03/2007 (I/RA/11283/06.123/MSA) |
| 2.9 | Calibration stationary equipment autumn (I/RA/11283/07.095/MSA) |
| 2.10 | Through tide measurement Siltprofiler winter (I/RA/11283/07.086/MSA) |
| 2.11 | Through tide measurement Salinity Profiling winter (I/RA/11283/07.087/MSA) |
| 2.12 | Through tide measurement Sediview winter (I/RA/11283/07.088/MSA) |
| 2.13 | Through tide measurement Sediview winter (I/RA/11283/07.089/MSA) |
| 2.14 | Through tide measurement Sediview winter (I/RA/11283/07.090/MSA) |
| 2.15 | Through tide measurement Siltprofiler (to be scheduled) (I/RA/11283/07.091/MSA) |
| 2.16 | Salt-Silt distribution Deurganckdok summer (21/6/2007 – 30/07/2007) (I/RA/11283/07.092/MSA) |
| 2.17 | Salt-Silt distribution & Frame Measurements Deurganckdok autumn (17/09/2007 - 10/12/2007) (I/RA/11283/07.093/MSA) |
| 2.18 | Salt-Silt distribution & Frame Measurements Deurganckdok winter (18/02/2008 - 31/3/2008) (I/RA/11283/07.094/MSA) |
| 2.20 | Calibration stationary & mobile equipment winter (I/RA/11283/07.096/MSA) |
| **Boundary Conditions: Upriver Discharge, Salt concentration Scheldt, Bathymetric evolution in access channels, dredging activities in Lower Sea Scheldt and access channels** | |
| 3.1 | Boundary conditions: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.127/MSA) |
| 3.10 | Boundary conditions: Three monthly report 1/4/2007 – 30/06/2007 (I/RA/11283/07.097/MSA) |
| 3.11 | Boundary conditions: Three monthly report 1/7/2007 – 30/09/2007 (I/RA/11283/07.098/MSA) |
| 3.12 | Boundary conditions: Three monthly report 1/10/2007 – 31/12/2007 (I/RA/11283/07.099/MSA) |
| 3.13 | Boundary conditions: Three monthly report 1/1/2008 – 31/03/2008 (I/RA/11283/07.100/MSA) |
| 3.14 | Boundary conditions: Annual report (I/RA/11283/07.101/MSA) |

| Report | Description |
|---|---|
| **Analysis** | |
| 4.1 | Analysis of Siltation Processes and Factors (I/RA/11283/06.129/MSA) |
| 4.10 | Analysis of Siltation Processes and Factors (I/RA/11283/07.102/MSA) |

### 1.3.1. Measurement actions

Following measurements have been carried out during the course of this project:

1. Monitoring upstream discharge in the Scheldt river
2. Monitoring Salt and sediment concentration in the Lower Sea Scheldt taken from on permanent data acquisition sites at Lillo, Oosterweel and up- and downstream of the Deurganckdok.
3. Long term measurement of salt distribution in Deurganckdok.
4. Long term measurement of sediment concentration in Deurganckdok
5. Monitoring near-bed processes in the central trench in the dock, near the entrance as well as near the landward end: near-bed turbidity, near-bed current velocity and bed elevation variations are measured from a fixed frame placed on the dock's bed.
6. Measurement of current, salt and sediment transport at the entrance of Deurganckdok for which ADCP backscatter intensity over a full cross section are calibrated with the Sediview procedure and vertical sediment and salt profiles are recorded with the SiltProfiler equipment
7. Through tide measurements of vertical sediment concentration profiles -including near bed highly concentrated suspensions- with the SiltProfiler equipment. Executed over a grid of points near the entrance of Deurganckdok.
8. Monitoring dredging activities at entrance channels towards the Kallo, Zandvliet and Berendrecht locks
9. Monitoring dredging and dumping activities in the Lower Sea Scheldt

In situ calibrations were conducted on several dates to calibrate all turbidity and conductivity sensors (IMDC, 2006a & IMDC, 2007a).

## 1.4. Structure of this report

This report is the factual data report for one measurement campaign:

- Long term salt/silt measurements in the Deurganckdok: 18 September – 18 December 2007
- Near bed frame measurements in the vicinity of Deurganckdok from 26 September until 5 December 2007.

The first chapter comprises an introduction. The second chapter describes the project. Chapter 3 describes the measurement campaign, equipment and the course of the actual measurements. The measurement results and processed data are presented in Chapter 4, whereas chapter 5 gives a preliminary analysis of the data.

# 2. SEDIMENTATION IN DEURGANCKDOK

## 2.1. Project Area: Deurganckdok

Deurganckdok is a tidal dock situated at the left bank in the Lower Sea Scheldt, between Liefkenshoek and Doel. Deurganckdok has the following characteristics:

1. the dock has a total length of 2750 m and is 450 m wide at the Scheldt end and 400 m wide at the inward end of the dock
2. the bottom of Deurganckdok is provided at a depth of –17m TAW in the transition zones between the quay walls and the central trench and of –19m TAW in the central trench.
3. the quay walls reach up to +9m TAW

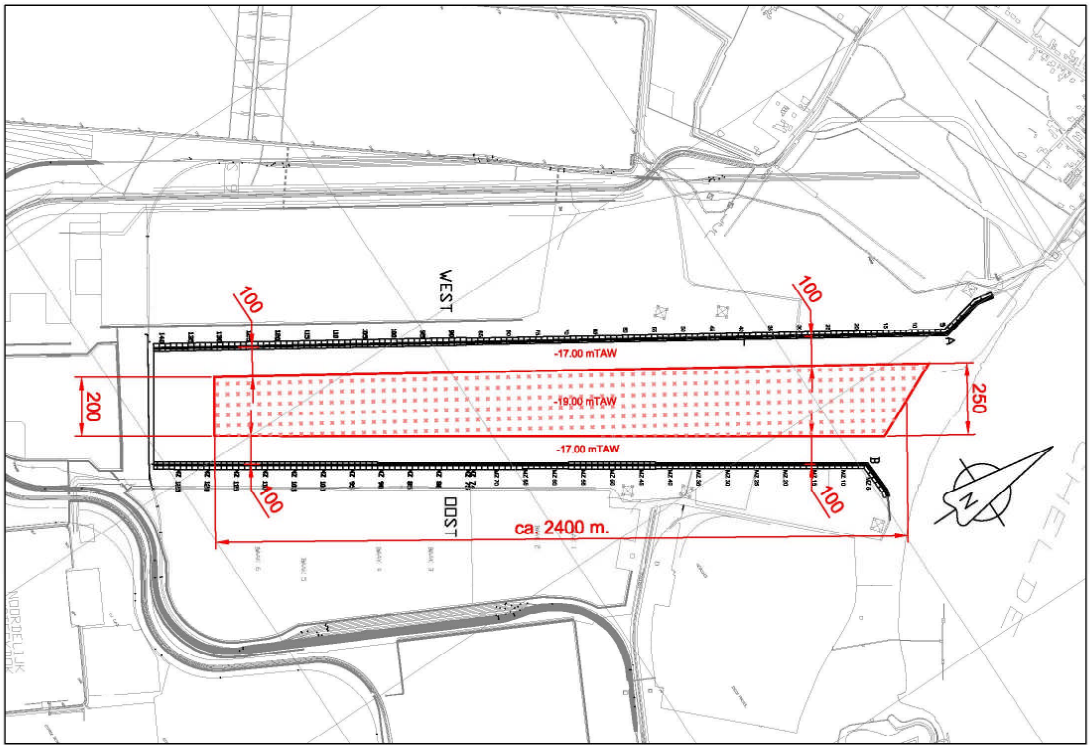


*Figure 2-1: Overview of Deurganckdok*

The dredging of the dock is performed in 3 phases. On 18 February 2005 the dike between the Scheldt and the Deurganckdok was breached. On 6 July 2005 Deurganckdok was officially opened. The second dredging phase was finalized a few weeks later. The first terminal operations have started since. In February 2007, the third dredging phase started and is planned to be finalised in 12 months time (by February 2008).

## 2.2. Overview of the studied parameters

The first part of the study aims at determining a sediment balance of Deurganckdok and the net influx of sediment. The sediment balance comprises a number of sediment transport modes:

deposition, influx from capital dredging works, internal replacement and removal of sediments due to maintenance dredging (Figure 2-2).

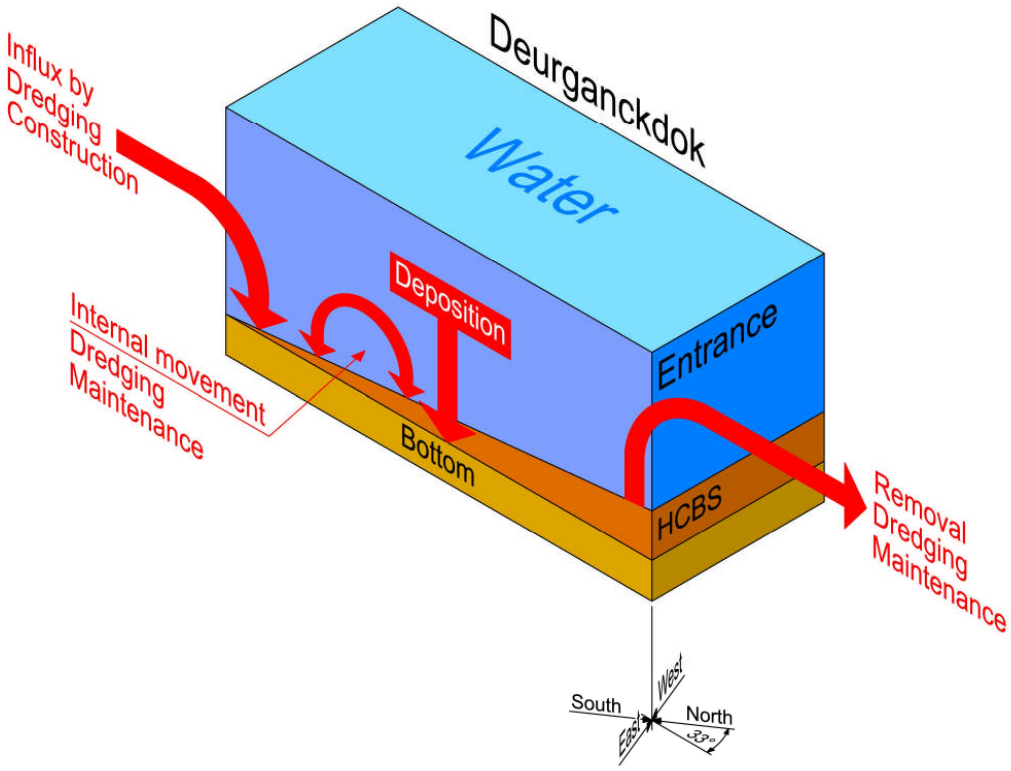


*Figure 2-2: Elements of the sediment balance*

A net deposition can be calculated from a comparison with a chosen initial condition $t_0$ (Figure 2-3). The mass of deposited sediment is determined from the integration of bed density profiles recorded at grid points covering the dock. Subtracting bed sediment mass at $t_0$ leads to the change in mass of sediments present in the dock (mass growth). Adding cumulated dry matter mass of dredged material removed since $t_0$ and subtracting any sediment influx due to capital dredging works leads to the total cumulated mass entered from the Scheldt river since $t_0$.

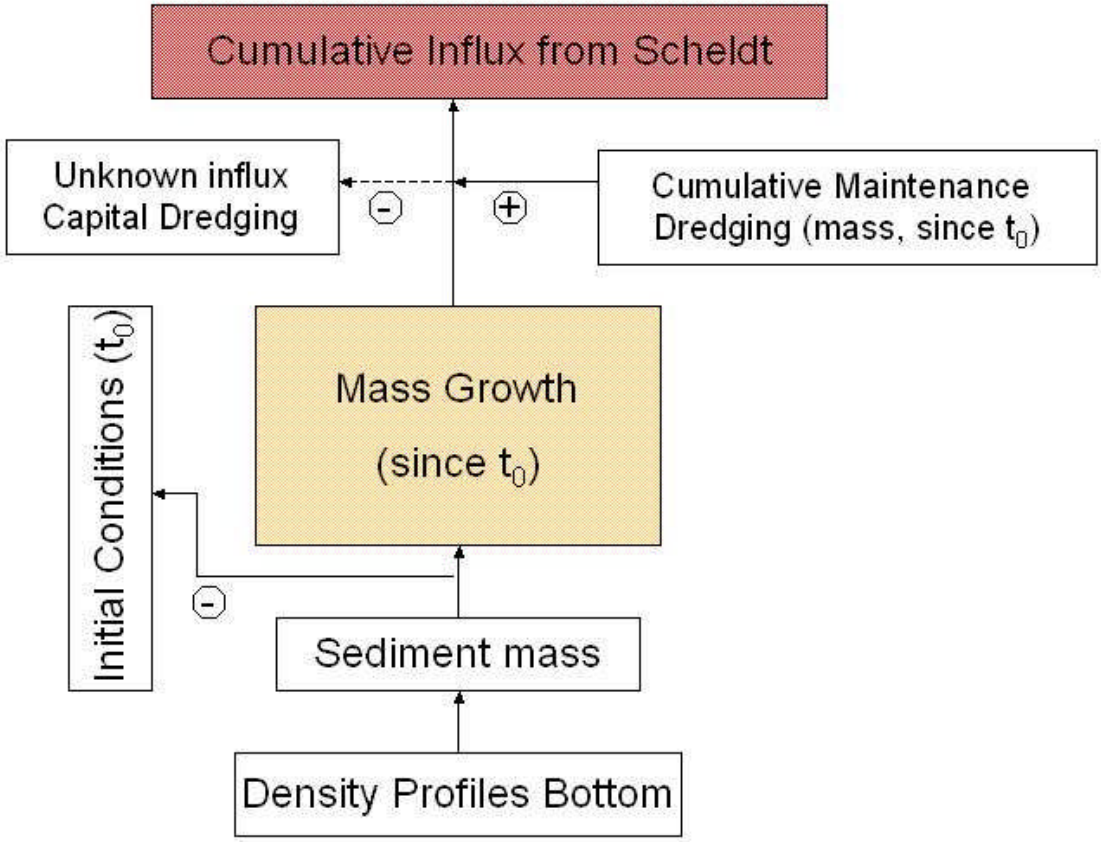


*Figure 2-3: Determining a sediment balance*

The main purpose of the second part of the study is to gain insight in the mechanisms causing siltation in Deurganckdok. The following mechanisms will be aimed at in this part of the study:

- Tidal prism, i.e. the extra volume in a water body due to high tide
- Vortex patterns due to passing tidal current
- Density currents due to salt gradient between the Scheldt river and the dock
- Density currents due to highly concentrated benthic suspensions

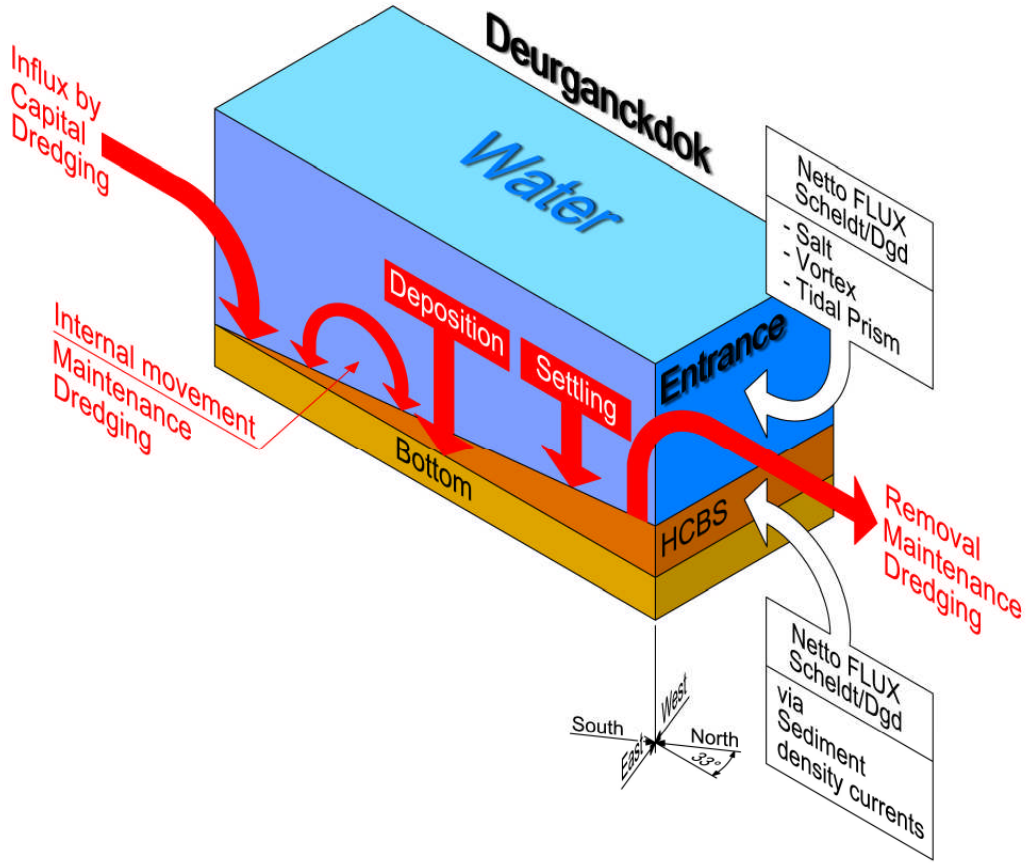


*Figure 2-4: Transport mechanisms*

These aspects of hydrodynamics and sediment transport have been landmark in determining the parameters to be measured during the project. Measurements will be focused on three types of timescales: one tidal cycle, one neap-spring cycle and seasonal variation within one year.

Following data are being collected to understand these mechanisms:

- Monitoring upstream discharge in the Scheldt river.
- Monitoring Salt and sediment concentration in the Lower Sea Scheldt at permanent measurement locations at Oosterweel, up- and downstream of the Deurganckdok.
- Long term measurement of salt and suspended sediment distribution in Deurganckdok.
- Monitoring near-bed processes (current velocity, turbidity, and bed elevation variations) in the central trench in the dock, near the entrance as well as near the current deflecting wall location.
- Dynamic measurements of current, salt and sediment transport at the entrance of Deurganckdok.
- Through tide measurements of vertical sediment concentration profiles -including near bed high concentrated benthic suspensions.
- Monitoring dredging activities at entrance channels towards the Kallo, Zandvliet and Berendrecht locks as well as dredging and dumping activities in the Lower Sea Scheldt.
- In situ calibrations were conducted on several dates to calibrate all turbidity and conductivity sensors.

## 2.3. Measurement objectives

### 2.3.1. Objective of the near bed continuous monitoring

The purpose of the deployment of the anchored measuring frame/rig is to monitor the detailed vertical structure of flow and suspended sediment concentration within a few decimeters from the bed. This frame measures at one location only, by definition, and is difficult to reposition. Therefore, it should be positioned at a location where near-bed HCBS are most likely, and with a vertical resolution of the instruments that matches the concentration gradients in suspension. The vertical flow and sediment structure assessed with the preliminary 3D mud transport model allows for an optimization of the layout of the anchored measuring frame with respect to the instrumentation.

### 2.3.2. Objective of the long term measurements near the quay walls

The goal of the survey is to monitor the spatial distribution of salt and silt in the Deurganckdok. Longitudinal, vertical and horizontal (from north to south quay) distribution is surveyed in this set up. The entrance of the dock is a favoured location because of the dynamics caused by the river-dock interaction. One deeper location in the dock is necessary to sample the longitudinal distribution of salt and silt along the dock.

# 3. THE MEASUREMENT CAMPAIGNS

## 3.1. Description of the long term suspended sediment-salinity measurements 18/09/2007 – 18/12/2007

### 3.1.1. Measurement location

During the period from 18/09/2007 till 18/12/2007, 6 multi parameter probes were placed on 3 fixed locations hanging from the quay wall in Deurganckdok at fixed depths.

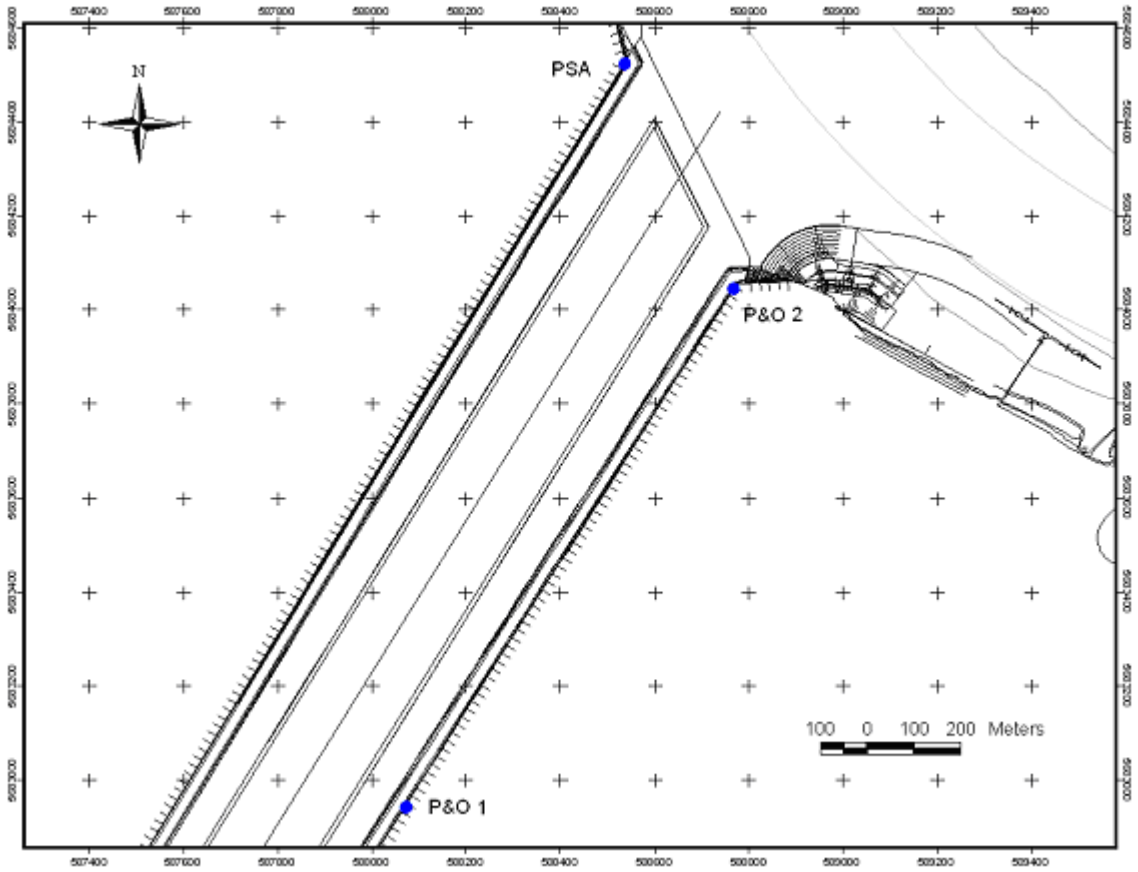


*Figure 3-1: Map of the measurement locations for long term salt-silt measurements in Deurganckdok*

*Table 3-1: Measurement locations in UTM ED50*

| ***Location*** | ***EASTING*** | ***NORTHING*** | ***Boulder*** | ***Operator*** |
|---|---|---|---|---|
| P&O 1 (S-back) | 588074 | 5682942 | Moot 72 | P&O Ports |
| P&O 2 (S-entrance) | 588767 | 5684045 | Moot 7 | P&O Ports |
| PSA (N-entrance) | 588536 | 5684523 | Moot 5 (boulder 286) | PSA HNN |

*Table 3-2: Deployment depths of all instruments for the measurement period*

| **Salt Silt Measurements Deurganckdok** | | | | |
|---|---|---|---|---|
| *Location* | *Easting (UTM ED 50)* | *Northing (UTM ED 50)* | *Depth of instrument [m TAW]* | *Period* |
| P&O 1 top | 588074 | 5682942 | -2.65 | 18/09/2007 – 18/12/2007 |
| P&O 1 bottom | 588074 | 5682942 | -12.3 | 18/09/2007 – 18/12/2007 |
| P&O 2 top | 588767 | 5684045 | -3.0 | 18/09/2007 – 18/12/2007 |
| P&O 2 bottom | 588767 | 5684045 | -11.8 | 18/09/2007 – 18/12/2007 |
| PSA top | 588536 | 5684523 | -2.5 | 18/09/2007 – 18/12/2007 |
| PSA bottom | 588536 | 5684523 | -11.9 | 18/09/2007 – 18/12/2007 |

## 3.1.2. The equipment

### *3.1.2.1. Quay Frame set up*

A simple rectangular measurement frame was conceived for suspending the instruments from the quay wall down into the Deurganckdok. Two frames rest against the dock wall and are suspended by stainless steel cables hanging from a rawlplug, secured on top of the quay wall.

Using a guiding system and a winch, it was possible to recover these instruments without the help of a survey vessel.

*Figure 3-2: Guiding system and chain suspended from the rawlplug (left), frame with RCM-9 and steel cables (right)*

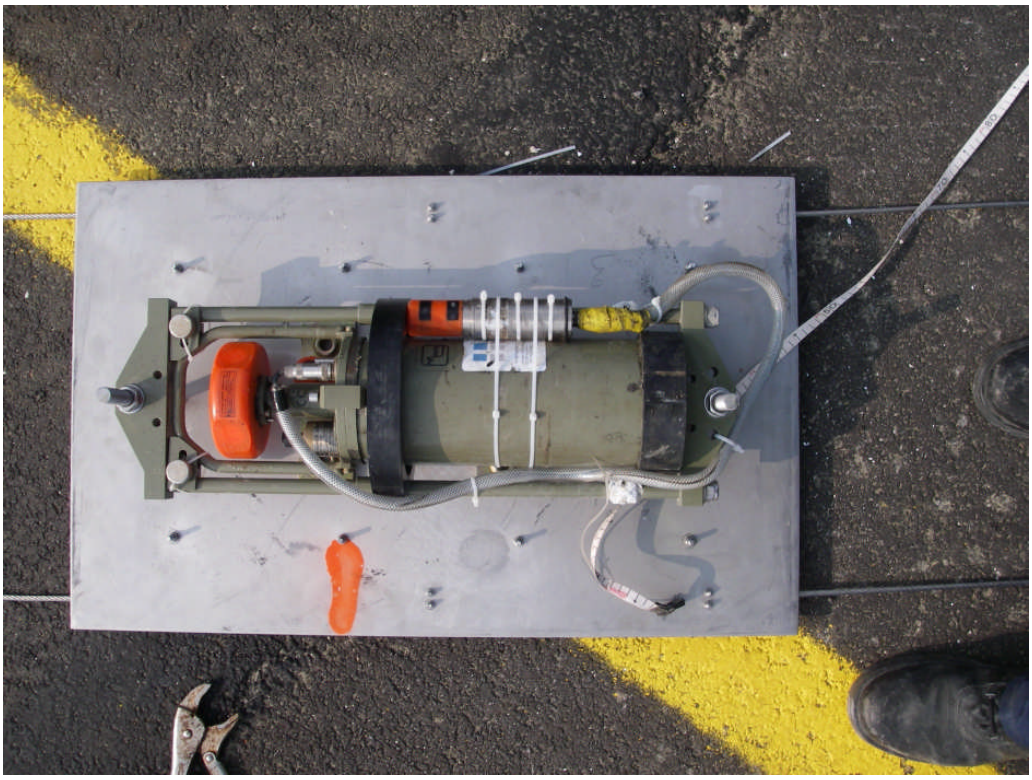

*Figure 3-3: frame design*

### *3.1.2.2. Aanderaa RCM-9*

The Aanderaa Recording Current Meter RCM-9 MkII is a multi-parameter instrument that consists of a CTD probe, Doppler Current Sensors and a Turbidity Sensor. It was set up to measure an average of a number of pings spread over an interval of 10 minutes for conductivity, depth, temperature and turbidity.

IMDC (2006a) gives more technical details on the RCM-9.

### *3.1.2.3. D& A Instruments OBS 3A*

The D & A Instruments OBS 3A is a multiparameter instruments that consists of a CTD probe and a turbidity sensor. The instrument was set up to measure every ten minutes for a minute at a frequency of 1 Hz and output the average.

IMDC (2006a) gives more technical details on the OBS 3A.

### 3.1.3. Course of the measurements

After deployment on 18/09/2006, the instruments were recovered, cleaned and read out every two weeks. Table 3-3 lists the measurement periods and possible issues. Only OBS 3A instruments were deployed during this measurement period

*Table 3-3: Overview of measurement periods and data gaps*

| ***P&O1 (S-BACK): -12.1 m TAW*** | | | |
|---|---|---|---|
| *Period* | *No data* | *Faulty data* | *Comments* |
| 20 Sept 2007 | | | Start measurement period |
| 9, 13, 15, 22, 23Nov 2007<br>1, 9 Dec 2007 | | X | Faulty data |
| 8, 13 Oct 2007<br>23-29 Nov 2007 | X | | Gaps in data (buried sensor) |
| 18 Dec 2007 | | | End measurement period |
| ***P&O1 (S-BACK): -2.6 m TAW*** | | | |
| *Period* | *No data* | *Faulty data* | *Comments* |
| 20 Sept 2007 | | | Start measurement period |
| 18 Dec 2007 | | X | Faulty data |
| 29 Nov 2007 | X | | Gaps in data |
| 18 Dec 2007 | | | End measurement period |
| ***P&O 2 (S-ENTRANCE): -13.0 m TAW*** | | | |
| *Period* | *No data* | *Faulty data* | *Comments* |
| 20 Sept 2007 | | | Start measurement period |
| 18 Dec 2007 | | X | Faulty data |
| 9, 10, 16, 17 Oct 2007, 1 Nov 2007<br>9-16 Nov 2007 | X | | Gaps in data<br>Battery cap flaw |
| 18 Dec 2007 | | | End measurement period |
| ***P&O 2 (S-ENTRANCE): -2.2 m TAW*** | | | |
| *Period* | *No data* | *Faulty data* | *Comments* |
| 20 Sept 2007 | | | Start measurement period |
| 12, 13 Oct 2007 | X | | Gaps in data |
| 18 Dec 2007 | | | End measurement period |

| ***PSA (N-ENTRANCE): -12.0 m TAW*** | | | |
|---|---|---|---|
| *Period* | *No data* | *Faulty data* | *Comments* |
| 20 Sept 2007 | | | Start measurement period |
| 28 Nov 2007 | X | | Gaps in data |
| 18 Dec 2007 | | | End measurement period |
| ***PSA (N-ENTRANCE): -2.3 m TAW*** | | | |
| *Period* | *No data* | *Faulty data* | *Comments* |
| 20 Sept 2007 | X | | Start measurement period |
| 7 Oct 2007 | X | | Gaps in data |
| 18 Dec 2007 | | | End measurement period |

## 3.2. Description of the near bed continuous monitoring 26/09/2007 – 05/12/2007

### 3.2.1. Measurement location

During the period 26/09/2007 till 05/12/2007, two frames were placed in the vicinity of the entrance of Deurganckdok. The first one was placed at the upstream edge of the Deurganckdock, on the sill. The depth at the location of the frame is –14m TAW roughly. Placement of the frame occurred on the 10th of October at 10h20; the removal of the frame happened on 28th of November at 12h00. The second frame was placed at the downstream edge of the dock. This location is situated nearby the future CDW (Current Deflecting Wall) location, near the left bank of the Scheldt. The frame was placed at a depth of –15m TAW roughly. The placement of this frame occurred on 26th of September at 14h00, the removal of the frame happened on 5th of December at 11h45. To signal the presence of the frames, buoys were placed near the frames.

Spring tides occurred around the 12th of October 2007 and the 11th of November 2007. Time is always given in MET.

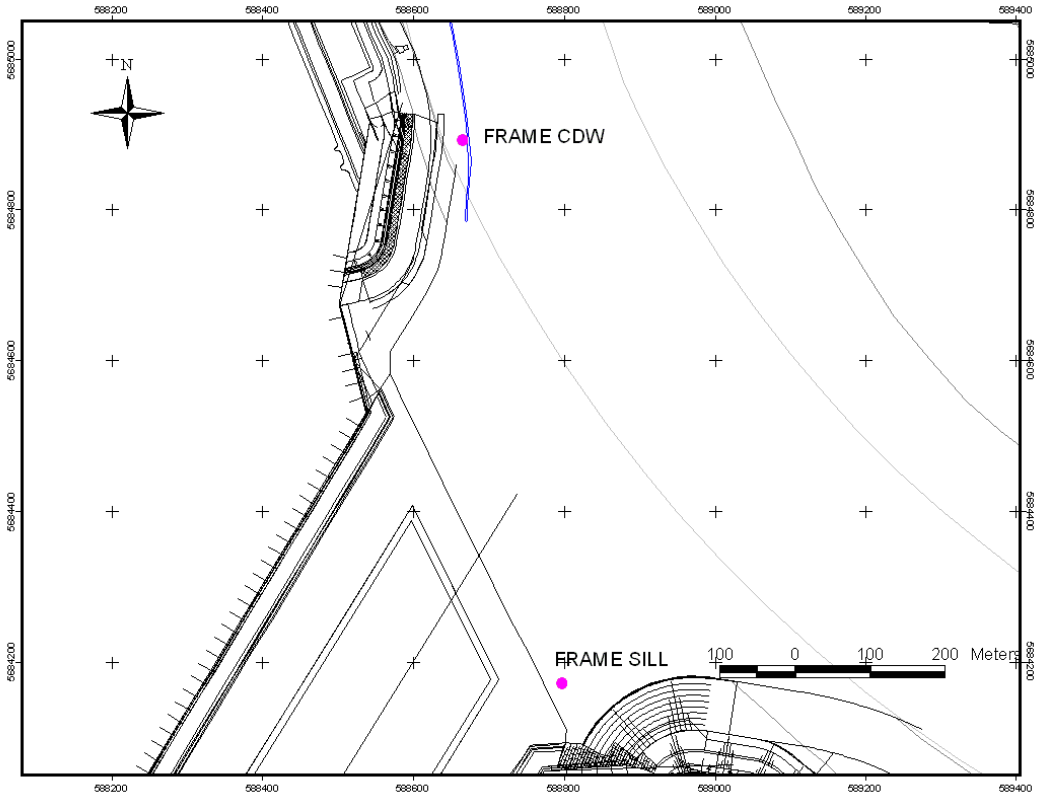


*Figure 3-4: Map of the measurement location*

### 3.2.2. The equipment

#### *3.2.2.1. The frames*

Two new frames were developed for autonomous measurement of sediment transport phenomena. The frames are equipped with an ARGUS ASM-IV high-resolution turbidity array, an ALTUS precision echosounder and two multiprobes: an Aanderaa RCM-9 and a Valeport MIDAS.

This way, proper instrumentation in the near bed zone was ensured. Data about the orientation, pitch and roll of the frames are obtained from a magnetic compass (orientation, Valeport MIDAS) and a tilt sensor (pitch and roll, ARGUS ASM-IV / Aanderaa RCM-9).

The set-up of the CDW frame is as follows:

- The RCM 9 was installed at 1.04m above the bottom, with the following sensors: a CTD probe, Doppler Current Sensors and a Turbidity Sensor
- The Valeport Midas was installed at 0.16m above the bottom, with the following sensors: a CTD- probe, an Electromagnetic Current Meter (ECM) and an OBS3+ turbidity sensor
- The ALTUS was installed at 0.44m above the bottom
- The ARGUS ASM-IV was installed in such a way that the lowest turbidity sensor was placed at 0.28m above the bottom

Since the Sill frame penetrated considerably during previous measurements, the supporting surface was enlarged. Further set up of the Sill frame is as follows:

- The RCM 9 was installed at 0.99m above the bottom, with the following sensors: a CTD probe, Doppler Current Sensors and a Turbidity Sensor
- The Valeport Midas was installed at 0.1m above the bottom, with the following sensors: a CTD-probe, an electromagnetic Current Meter (ECM) and an OBS3+ turbidity sensor
- The ALTUS was installed at 0.50m above the bottom
- The ARGUS ASM-IV was installed in such a way that the lowest turbidity sensor was placed at 0.33m above the bottom

This is anticipated to allow a proper measurement of the lower current profile and give additional information on the suspended sediment concentration structure. Figure 3-5 shows the CDW frame with all the sensors. The Sill frame is built up identically.

Each sensor has its own data logger and power supply from internal batteries.

The frames were designed for easy transport and installation. The sensor positions, in particular sensor height above the bed, can be adjusted to specific requirements over a wide range. The structure of the frames consists of a tripod with a separation of about 4 metres between the legs. The height is about 2.3 m. Several girders give the frames the required sturdiness. The sensors can be clamped to adjustable supports. Hoisting support facilities are attached to the top of the frames.

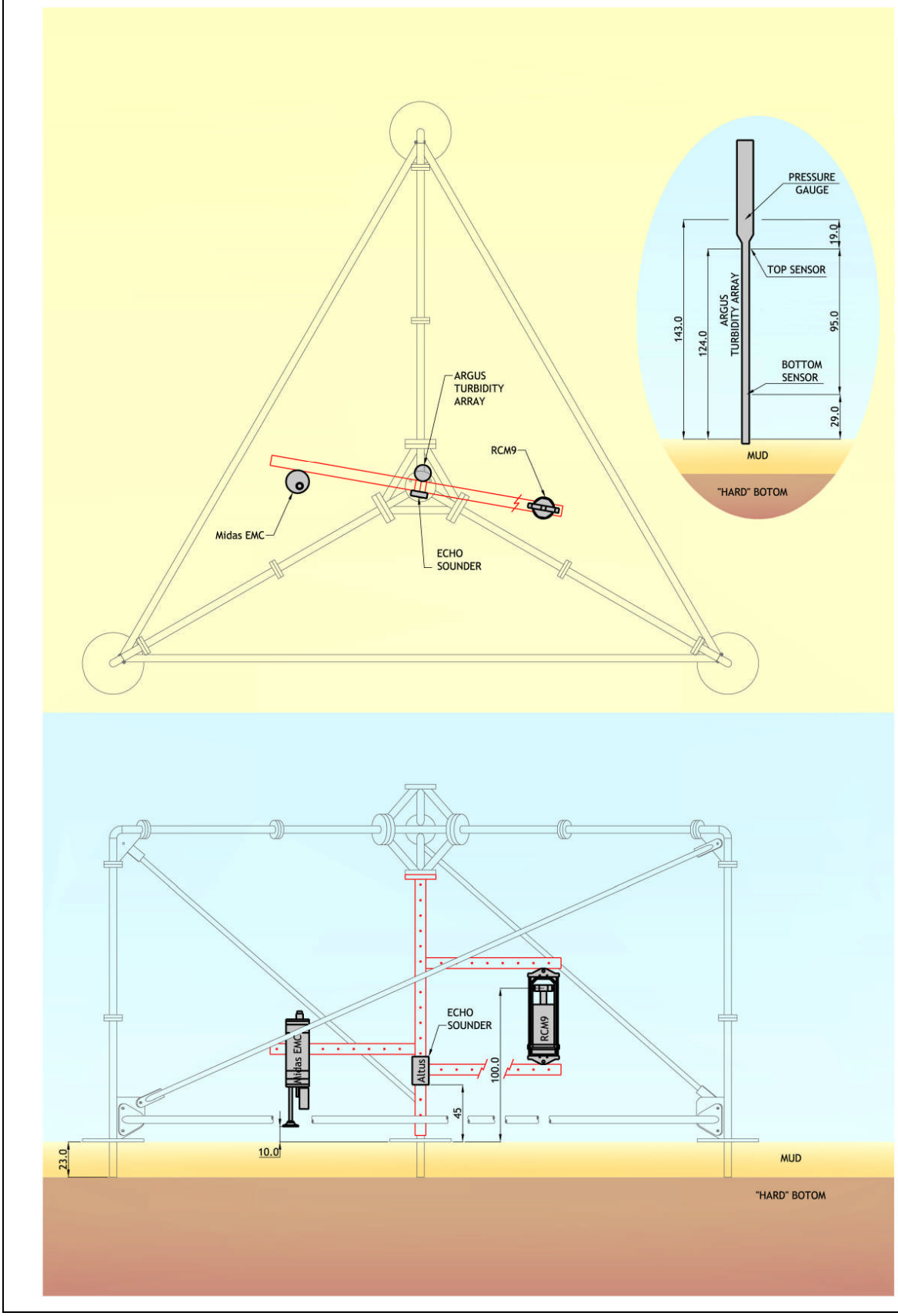


*Figure 3-5: Sketch of the CDW frame with all the sensors (dimensions in [cm])*

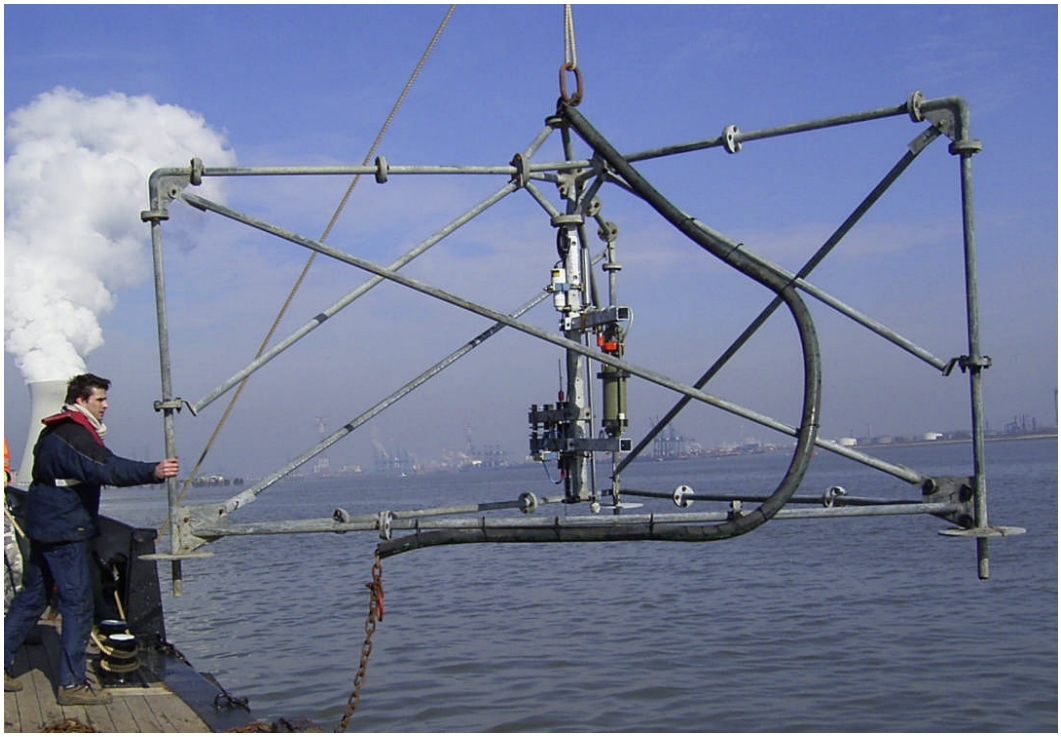

*Figure 3-6: Installation of the CDW frame*

### *3.2.2.2. ARGUS ASM-IV*

The ARGUS ASM-IV was used to detect the vertical structure of the suspended sediment concentration in the zone of 1 meter above the bed.

The ARGUS ASM-IV was developed for high resolution measuring of accretion and erosion of the riverbed. (ARGUS UMWELT-MEATECHNIK, 2005). The instrument operates with backscatter infrared laser sensors embedded in a stainless steel rod. The 96 sensors are placed on an active board at a distance of 0.01m of each other. There are three additional sensors: an inclinometer, a pressure gauge and a on board temperature sensor.

A battery powered central unit in the head of the instrument controls activation and power supply of the sensors as well as the transmission of the signals. The sealed in unit consists of a microprocessor, a data memory, the additional sensors and the energy supply.

The ARGUS ASM-IV has a sampling interval of 5 seconds and every cycle there are 20 samples taken. The break range between each burst (i.e. pause) is set at 500 seconds. This means that the total cycle time is 600 seconds.

The measurement range of the ARGUS ASM-IV is from 0 to 5000mg/l.

More details on the ARGUS ASM-IV can be found in the February Survey Reports of the HCBS 1 measurement campaign (IMDC, 2005h)

*Figure 3-7: ARGUS ASM-IV*

### *3.2.2.3. ALTUS*

The ALTUS is specially designed for mainly muddy environments to precisely quantify changes of bottom elevation. It is a high frequency acoustic submersible recording altimeter and is based on a 2 MHz echo sounder which transducer is located at a given distance from the bed. The echosounder was attached to the frame such that (looking downward) it can measure bottom variations with an accuracy of about 2mm. A separate container includes altimeter electronics, data logger, pressure sensor and energy.

The logging cadence was 600 seconds.

The technical details on the Altus are described in the February Survey Reports of the HCBS 1 measurement campaign (IMDC, 2005h).

### *3.2.2.4. Valeport MIDAS OBS3+*

The Valeport MIDAS is a multiparameter instrument that has a CTD- probe, an electromagnetic Current Meter (EMC) and an OBS3+ turbidity sensor with a range of 0-1500 FTU. The instrument was set to measure in cycles of 10 minutes, divided into 100 samples at a rate of 1Hz and a pause of 500 seconds.

The principle of the electromagnetic current meter enables velocity measurements at very large suspended sediment concentrations (in comparison to measurement techniques based on the Doppler principle). Further technical details on the Valeport MIDAS OBS3+ are described in the Report 6.1 Winter calibration (IMDC, 2006a) of the HCBS2 Measurement campaign.

*Figure 3-8: Valeport MIDAS EMC and OBS3+*

#### *3.2.2.5. Aanderaa RCM-9*

There can be referred to § 3.1.2.2. All sensors (temperature, pressure, conductivity, turbidity, tilting) except the Doppler Current Sensor were set to record once every 10 minutes. The Doppler Current Sensor sent 600 pings during every 10 minute-interval and calculated the average value for current speed and direction over this interval. Data storage units in the instruments logged all the measured values.

### 3.2.3. Course of the measurements

At the entrance of Deurganckdok the two frames were set to measure, the Sill frame from the 10th of October until the 28th of November 2007 and the CDW frame from the 26th of September till the 5th of December 2007. Every week one of the two frames was recovered, the data of all equipment was downloaded and batteries were replaced, whereupon the frame was deployed again.

After removal of the frames, data of all equipment was tested. For the frame at the sill of Deurganckdok, the Argus turbidity rod measured 20 samples per cycle with a sample interval of 5s with a pause of 500s between successive cycles, obtaining a total cycle time of 10 minutes. The instrument measured properly and the tilt meter indicates a good horizontal position of the frame (tilt less than 3°), except during the third deployment at which faulty data was obtained from the 4th until the 14th of November 2007. Since during this period the tilt meter indicated no longer a horizontal position of the frame, collapsing of the frame was considered. But looking more in detail it seemed that the data obtained from the other sensors (pressure and temperature) was also erroneous, whereas the data of the other instruments installed on the frame did not show any irregularities on the 4th of November 2007. The data obtained during the next deployment was again correct, so there is no indication of what had happened. The Altus echosounder and the Aanderaa RCM9, both with a measurement cadence of 10 minutes, worked properly. But after the first deployment period, the seal of the Aanderaa RCM9 was broken and since no spare was available on board, redeployment of the RCM9 was postponed until the next recovery/deployment. The Valeport MIDAS OBS3+ only measured properly during the third deployment (31/10/2007 – 14/11/2007). During the other deployments the instrument was submerged in the silt. The location at the sill of Deurganckdok is known as a very silty area. Measures are taken to prevent the frame from penetrating into the bottom, but the possibility of slight penetration still exists. One measurement cycle of the Valeport took 10 minutes (30 samples were taken at a rate of 1 sample per second and a pause of 570s).

Concerning the frame at the downstream edge of Deurganckdok (CDW) the instruments measured with the same tuning as the Sill frame. The Aanderaa RCM9 worked properly. A good horizontal position (tilt less than 7°) is shown by the RCM9. The Altus and the MIDAS OBS3+ also measured properly, but at the end of the first two deployments the MIDAS OBS3+ ran short of battery and during the third deployment, it seemed that the Altus was out of range. Concerning the ARGUS, during the first two deployments (26/09/2007 – 17/10/2007 & 17/10/2007 – 08/11/2007) no problems occurred during measurements. Afterwards, it was not managed to start up the instrument again, so no more data was obtained.

An overview of the measurement locations is given in Table 3-4, while a chronological overview of measured data with an explanation can be found in Table 3-5.

*Table 3-4: Overview of the measurement locations (UTM50) and periods*

| **Near bed continuous monitoring** | | | |
|---|---|---|---|
| *Location* | *Easting (UTM ED 50)* | *Northing (UTM ED 50)* | *Period* |
| Deurganckdok CDW | 588573 | 5684677 | 26/09/2007 – 05/12/2007 |
| Deurganckdok Sill | 588697 | 5683941 | 10/10/2007 – 28/11/2007 |

*Table 3-5: Chronological overview of missing and faulty data*

| **Deurganckdok Sill** | | | |
|---|---|---|---|
| ***Period*** | ***No data*** | ***Faulty data*** | ***Comment*** |
| 10/10/2007 | | | Deployment |
| 10/10/2007 – 25/10/2007 | | MIDAS OBS 3+ | Instrument submerged in silt |
| 25/10/2007 | | | Recovery/Deployment |
| 25/10/2007 – 31/10/2007 | | MIDAS OBS 3+ | Instrument submerged in silt |
| 25/10/2007 – 31/10/2007 | RCM9 | | Instrument not deployed |
| 31/10/2007 | | | Recovery/Deployment |
| 04/11/2007 – 14/11/2007 | | ARGUS | Instrument failing |
| 14/11/2007 | | | Recovery/Deployment |
| 14/11/2007 – 28/11/2007 | | MIDAS OBS 3+ | Instrument submerged in silt |
| 28/11/2007 | | | Recovery |
| **Deurganckdok CDW** | | | |
| ***Period*** | ***No data*** | ***Faulty data*** | ***Comment*** |
| 26/09/2007 | | | Deployment |
| 12/10/2007 – 17/10/2007 | MIDAS OBS 3+ | | No battery |
| 17/10/2007 | | | Recovery/Deployment |
| 07/11/2007 – 08/11/2007 | MIDAS OBS 3+ | | No battery |
| 08/11/2007 | | | Recovery/Deployment |
| 08/11/2007 – 21/11/2007 | ARGUS | | Instrument failing |
| 08/11/2007 – 21/11/2007 | ALTUS | | Out of range instrument |
| 21/11/2007 | | | Recovery/Deployment |
| 21/11/2007 – 05/12/2007 | ARGUS | | Instrument failing |
| 05/12/2007 | | | Recovery |

# 4. PROCESSING OF DATASETS

## 4.1. Calibration of the sensors

A crucial aspect of the accuracy and reliability of the data concerns the calibration of the instruments before the measurement campaign. The calibration procedures and results are described in report 6.1 Winter calibration of the HCBS2 measurements (IMDC, 2006a), report 6.2 Summer calibration of the HCBS2 measurements (IMDC, 2007a) and report 2.09 autumn 2007 calibration of the Long Term Deurganckdok measurements (IMDC, 2008).

## 4.2. Long term measurements near quay wall

A second period of the long term measurements executed at two depths (on average -2.7 m TAW and -12 m TAW) at three locations on the quay walls of Deurganckdok lasted from 20 September until 18 December 2007. Depth, temperature, salinity and suspended sediment concentration have been logged. All gathered time series have been converted to appropriate engineering units and combined to form series covering the complete period. During validation erroneous data due to mid term recovery, sensor malfunction and buried equipment has been removed. In this form the data is ready for processing.

### 4.2.1. Factual data: Weekseries

Measurements are visualized per instrument, location and per week in APPENDIX B.

- The title shows the week number followed by the year
- The second graph depicts the salinity and temperature
- The third and last graph shows the water level at the nearest tidal gauge and the suspended sediment concentration

Faulty data is omitted from these graphs.

### 4.2.2. Average tidal cycle of local parameters

For all parameters measured at one location data has been organised in separate series per tidal cycle (low water to next low water). High water moments were placed on a fixed position in the series, low water moments differ in time relative to high water due to variation in flood and ebb length with neap-spring phases. In this way a time series with time relative to high water is produced for each tide. When tidal elevation data showed substantial gaps data from pressure gauges was used to divide the long series into tidal series.

By defining average tidal amplitude A for neap, average and spring tides, it becomes possible to classify tidal cycles in three categories in the following way:

$$Neap : A \le \alpha(A_{neap} + A_{aver})$$

$$Spring : A \ge \alpha(A_{spring} + A_{aver})$$

$$Average : \alpha(A_{neap} + A_{aver}) < A < \alpha(A_{spring} + A_{aver})$$

where: $A_{neap}$, $A_{aver}$ and $A_{spring}$ are average amplitudes

$\alpha$ is a factor to decide where to distinguish between categories (here taken as 0.5)

Using such categorisation the tidal series can be grouped in neap, average and spring tides. Within these groups an average is made per parameter per tidal phase relative to high water (Figure 4-1).

In this way an average neap tidal cycle, an average middle tidal cycle and an average spring tidal cycle is obtained for all parameters.

The same exercise is repeated for relative values, which are the measured values divided by the tidal average (the average parameter value for that particular tidal cycle). All three types are shown in one plot with a plot for salinity, sediment concentration and temperature per page in APPENDIX G1.

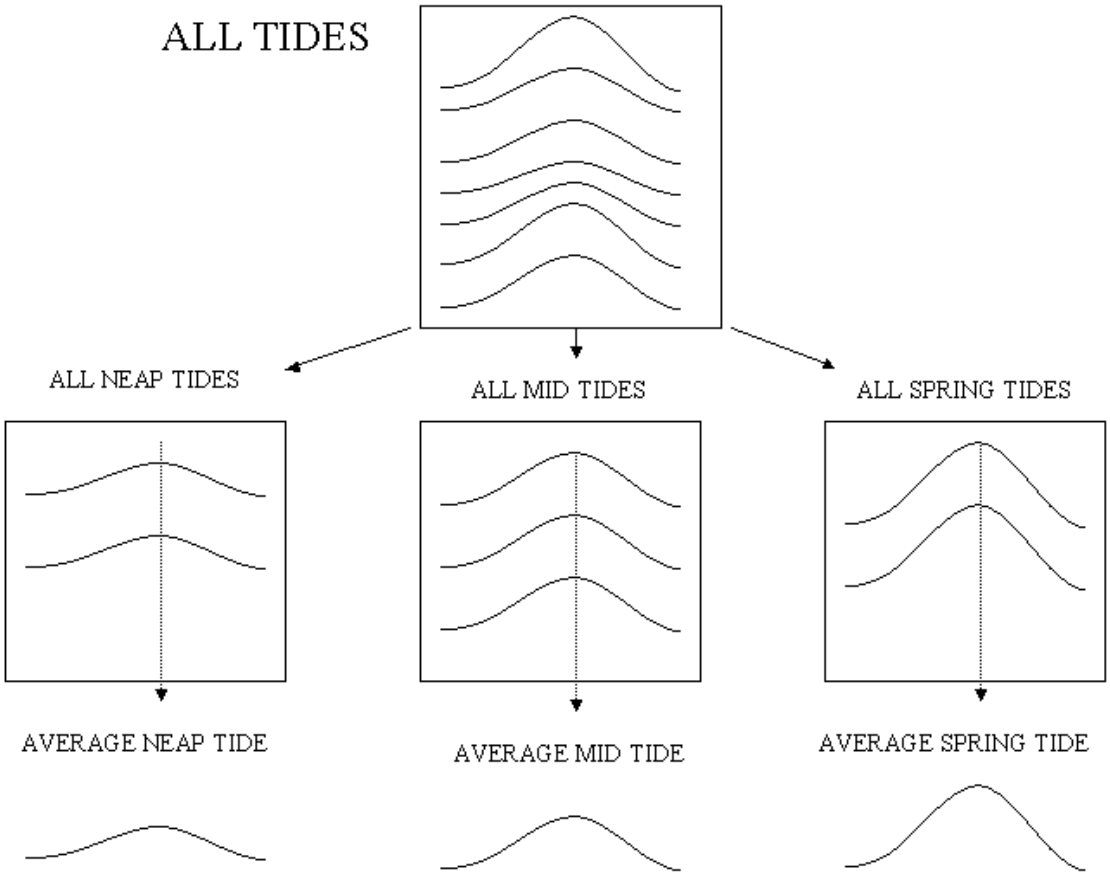


*Figure 4-1: Categorisation of tidal tidal cycles*

### 4.2.3. Average tidal cycle of gradients

For each of the three parameters being processed, four horizontal gradients (along dock's axis and cross dock, each at two depths) and three vertical gradients (one per location) have been calculated. The gradient along Deurganckdok was obtained by the difference of measurements between locations P&O2 (S-ENTRANCE) and P&O1 (S-BACK) (P&O1 minus P&O2), the gradient across Deurganckdok was calculated as the difference between locations P&O2 (S-ENTRANCE) and PSA (N-ENTRANCE) (PSA minus P&O2). For each of the locations a vertical gradient has been calculated from the difference between the measurements at approximately –2.7 m TAW and the measurements at approximately –12 m TAW (-12 m data minus –2.7 m data).

The time series of gradients obtained as such have then been processed following exactly the same tidal separation technique as for the local parameters (described in 4.2.2). The results are shown in APPENDIX G2.

## 4.3. Near bed continuous monitoring

### 4.3.1. Methodology of processing the ARGUS ASM-IV data

The data gathered by the ARGUS ASM-IV during the measurements was processed with the ASMA 3.11 software (provided by ARGUS UMWELT-MEATECHNIK).

Raw data files are loaded in combination with the appropriate calibration file. This file is set up during the calibration. Finally only the data at the beginning and the end of the time series (apparatus not submerged) needed to be removed.

Time series, which show the sedimentation profile measured by the 96 sensors, can be found in APPENDIX C. In these plots the time axis shows MET-time. Also a table showing average values for SS concentration per tidal phase is shown. All sensors are organized per 10 (except top 6 are together) and averaged over flood and ebb phases. An average tidal phase (i.e. tidal phase with an average tidal difference) is also shown for every deployment period in APPENDIX C.

### 4.3.2. Methodology of processing the Altus data

The Altus data were validated and processed. Outliers were screened and removed.

The ALTUS gathers echo-signals at 4 different threshold values. The maximal echo value is used as a reference value for the hardness of the bottom. When the echo signal exceeds certain percentage of this emitted signal strength, a high percentage (70%) threshold will give an indication of the hard bottom, lower percentage threshold values (11%, 23%, 39%) indicate various levels in the soft bottom with a decreasing 'density'. Increasing distances indicate a net erosion, decreasing distances a net sedimentation. The differences between the 4 signals at one given time and measurement give an indication on the 'firmness or solidity' of the soft bottom. These differences are hard to quantify and are more to be analysed qualitatively. Table 4-1 shows the threshold values used and their colour in the graphs.

Week series are shown in APPENDIX C together with the ARGUS week series. Altus datasheets show values for all measured signals including the tide at a nearby tidal station (Liefkenshoek).

A table is added with the Altus Echosounder-Bottom distances of every signal for each High Water (HW) and Low Water (LW). An average tidal phase is also shown for every deployment period in APPENDIX C.

*Table 4-1: Overview of the used threshold values for the Altus Echosounder*

| ***Legend name used*** | ***Threshold value [% of Signal]*** | ***Colour in the graph*** |
|---|---|---|
| Signal 1 | 11% | Red |
| Signal 2 | 23% | Green |
| Signal 3 | 39% | Blue |
| Signal 4 | 70% | Black |

### 4.3.3. Multiprobes: RCM9 and Valeport data

RCM9 and Valeport MIDAS OBS3+ data were validated and processed. Outliers were screened and removed.

Velocities were computed with a reference to the magnetic North.

Datasheets in APPENDIX D give the '2 days'-series of RCM9 and Valeport data:

- Velocity Magnitude and Direction of UP sensors (RCM9)
- Velocity Magnitude and Direction of DOWN sensors (Valeport)
- Suspended Sediment Concentration of UP (blue) and DOWN (red) sensors. Tidal height is included together with these parameters from the nearest tidal station (Liefkenshoek)
- Absolute Suspended Sediment Flux of UP (blue) and DOWN (red) sensors. Tidal height is included together with these parameters from the nearest tidal station (Liefkenshoek)

The Absolute Suspended Sediment Flux is not defined for a defined cross-section. It is an absolute flux (Velocity Magnitude x SS Concentration).

In APPENDIX D tables are showing average values for Velocity Magnitude, Direction, SS Concentrations and Absolute Fluxes for both UP and DOWN sensors per tidal phase (ebb/flood).. An average tidal phase is also shown in APPENDIX D.

In APPENDIX E the suspended sediment concentration measured by the RCM9 and Valeport sensors (blue) was compared to the suspended sediment concentration measured by the ARGUS sensors (red) at the same height (when data was available):

- For the Sill frame, the UP sensor was located at 0.99 m above the bottom and was compared to the ARGUS sensor 47, which resided at the same depth.
- For the Sill frame, the DOWN sensor was located at 0.1 m above the bottom and was compared to the ARGUS sensor 86, which was located at 0.43 m above the bottom.
- For the CDW frame, the UP sensor was located at 0.84 m above the bottom and was compared to the ARGUS sensor 40, which resided at the same depth.
- For the CDW frame, the DOWN-sensor was located at 0.16 m above the bottom and was compared to the lowest ARGUS sensor 96, which was located at 0.28 m above the bottom.

Tidal height is included together with these parameters from the nearest tidal station (Liefkenshoek).

In APPENDIX E tables are showing average values for SS Concentrations of both Argus and RCM9 and Valeport sensors per tidal phase (ebb/flood). An average tidal phase is also shown in APPENDIX E.

# 5. PRELIMINARY ANALYSIS

## 5.1. Long term salinity measurements 18/9/2007 – 18/12/2007

For each of the three locations salinity, sediment concentration and temperature have been logged at two depths. Apart from week series of every parameter, average tidal cycles have been determined for each parameter. This was done for absolute and relative values, as well as for horizontal gradients along and across the dock, and vertical gradients (APPENDIX **G**). All of these results are discussed below.

### 5.1.1. Week series

#### *5.1.1.1. P&O 1 (S-BACK)*

The water temperature measured around 18°C at the start of the measurement campaign and steadily decreased to 7°C by the end of the measurements.

The initial surface water salinity of approximately 15 ppt slightly decreased to 13 ppt in the first days, after which the salinity stagnated in the period of 15 October – 11 November 2007. It further decreased until a value of 10 ppt by 15 November after which it stabilized until 3 December. Then, surface water salinity again decreased to 3-4 ppt. Salinities at the bottom followed similar trends but measured around 2 ppt more than the subsurface water salinities. As will be discussed in §5.1.2.1, salinity variation indeed followed the neap-spring tide variation, superimposed on the daily tides.

The suspended sediment concentration at the landside of the dock was in the range of 25-50 mg/l for both bottom and surface water measurement locations. Peaks of suspended solids concentrations of up to 600 mg/l were seen near the water surface but, in general, peaks were in the order of 300 mg/l. At the bottom of the dock, concentrations go up to values of 800 mg/l. In the period of 25-29 September, a high frequency of occurrence peaks could be observed near the bottom.

#### *5.1.1.2. P&O 2 (S-ENTRANCE)*

Also at this location, water temperature gradually dropped from 18°C to a value of 7°C by the end of the measurement period.

Measured salinities showed almost no tidal fluctuations near the bottom; the tidal variation was more pronounced near the water surface. During the measurement campaign, the bottom salinity slightly varied between 15 and 17 ppt in the period 18 September – 8 November 2007. From 8 November to the start of December the salinity varied between 10-15 ppt. Near the water surface, salinity varied between values of 13 and 15 ppt. At this location, it decreased to 10 ppt from 13 November on. At 4 December, the surface and bottom salinity dropped to a value of 3-4 ppt.

Near the bottom of the dock the base suspended sediment concentration measured around 50-75 mg/l. Close to the water surface, base concentrations were below 50 mg/l. Whereas maximal concentrations go up to values of 600-800 mg/l near the bottom, maximum concentrations of 100-150 mg/l were observed near the water surface. Frequent peaks of suspended solids concentrations were seen the last 9 days of November.

#### *5.1.1.3. PSA (N-ENTRANCE)*

Again, water temperature decreased from 18°C to a value of 7°C by the end of the measurement period.

Near the bottom, salinity measured around 15-17 ppt until mid-November. Salinity subsequently gradually decreased to 10 ppt to stay constant until 4 December. A second drop then occurred to a salinity of 4 ppt. The same trend could be observed for the near-surface salinities. Tidal variation in salinity was larger near the water surface in comparison to the near-bottom salinities, i.e. 5 ppt instead of 2-3 ppt.

The time series of bottom suspended sediment concentration was generally characterised by peak values of up to 800 mg/l at flood tides. The base sediment concentration was around 50 mg/l though. More peaks seemed to occur in the periods 27-28 September, 15-16 October and 21 November – 2 December 2007. Note also that the sediment concentration peaks were less pronounced near the water surface and showed values up to 200 mg/l SSC. Only in the period 21 November – 2 December, peaks of suspended solids concentrations occurred with values up to 600-800 mg/l.

### 5.1.2. Average tidal cycles

Plots of averaged tidal cycles can be found in APPENDIX **G**.

#### *5.1.2.1. Local Parameters*

The water temperature was rather constant over a tidal cycle and varied between 12 and 17°C. The lowest temperature was observed at average tides, whereas neap tide returned an equal or lower temperature in comparison with spring tide.

Similar to temperature, a minimal salinity was obtained during an average tide. At the southern berths, i.e. S-ENTRANCE and S-BACK, almost no tidal variation could be observed. If a maximum occurred, it was seen 4-5 hours after flood tide. Instead, a distinct maximum and minimum prevailed near the surface at N-ENTRANCE; a difference of around 4 ppt was seen here. Near the bottom, this tidal variation was less distinct though.

In comparison with salinity and temperature, suspended sediment concentration showed the largest variation over all tidal cycles. The southern berths (S-ENTRANCE and S-BACK) showed a maximum suspended solids concentration at flood tide; this occurred only near the bottom. At spring tide, this maximum concentration was in the range of less than 250 mg/l SSC. Instead, at N-ENTRANCE a maximum concentration of 200 mg/l was observed at spring tide; during neap tide, almost no tidal variation was seen. This maximum occurred between 0 and 2 hours after flood tide near the water surface. Close to the bottom, a maximum concentration of 400 mg/l prevailed 1 hour after high water at N-ENTRANCE.

#### *5.1.2.2. Gradients*

*Cross-dock gradients* from P&O 2 (S-ENTRANCE) towards PSA (N-ENTRANCE) have been calculated at both –2.8 m TAW and –11.8 m TAW. In general, calculated gradients were low and close to zero.
The cross-section gradient of salinity near the bottom of the dock was negative indicating that the salt concentration was largest near the southern quay. Positive gradients occurred 1-2 hours after flood tide. Although positive values could be observed for the suspended sediment concentration gradient, a similar (positive) peak gradient as for salinity was seen after flood tide for approximately 2 hours. Larger bottom water temperatures were measured at the southern quay wall in comparison with the northern quay. The opposite, but very weak, counted around flood tide.
Closer to the water surface at the dock entrance, gradients varied more compared to the bottom gradients, except for the suspended solids concentration. The change of suspended sediment concentration near the water surface after flood tide was the same as close to the bottom. Again, the salinity and the temperature showed a positive cross-dock gradient just before and after flood tide. However, the positive gradient persisted longer in time: 2 and 4 hours for temperature and salinity respectively.

*Along-dock gradients* run from the entrance towards the inland end of the dock. From the observations it is clear that salinity and temperature gradients were very small at both the bottom and the surface. Although very small and negatively valued in general, a positive temperature gradient was observed for 2 hours after flood tide close to the bottom, i.e. the water temperature at the back-end of the dock was smaller than at the entrance. Conversely, positive temperature gradients were observed 4 to 6 hours prior to flood tide. Comparable to the temperature gradients close to the bottom, salinity showed positive gradients starting from 2 hours after flood tide. Near the surface, negative gradients prevail 3 hours prior to and after flood tide.
From the measurements, it was seen that the bottom suspended sediment concentration gradient was negative for the entire tidal cycle, except for the period of 1-4 hours after flood tide. In other words, the sediment concentration near the bottom of the dock was smaller near the entrance in comparison to the inland side of the dock for this 3-hours period after flood tide. The gradients for suspended sediment concentration were less pronounced near the water surface.

*Vertical gradients* were small for salinity and very small for temperature. Salinity gradients were always positive, with a maximum at 0-3 hours after low tide; no real maximum occurred at the landside end of the dock. Similarly, the suspended solids concentration was always positive, except for 2-5 hours prior to flood tide at S-ENTRANCE. A peak in solids concentration could be seen between 1 hour prior to and 2 hours after flood tide at the entrance measurement locations. At the landside end of the dock, the peak occurred later, i.e. 1-3 hours after flood tide. At PSA (N-ENTRANCE), vertical sediment concentration gradients measured up to 2 mg/l/m at spring tide, whereas P&O1 (S-ENTRANCE) was characterised with values of up to approximately 1.2 mg/l/m. Inside the dock, positive sediment concentration gradients prevailed and measured around 2 mg/l/m. These vertical gradients are very small nonetheless considering the measurement accuracy of the instruments (OBS 3A) and should therefore be interpreted with caution.

### 5.1.3. Comparison with previous measurements

Because this measurement campaign occurred in autumn, its outcome is to be expected in between the previous summer and winter campaigns. In comparison to the February-March 2007 measurement campaign (see IMDC (2007j), Appendices), the range of salinities and temperatures were very similar for the winter months of the actual measurements. The base suspended sediment concentrations were larger and measured up to 150 mg/l SSC compared to the 50 mg/l as observed in this research period. The peaks of solids concentration were also less pronounced than before, i.e. peaks of up to 1000 mg/l did not occur here.

With respect to the averaged tidal cycles, most phenomena were in accordance with the summer 2007 campaign. However, discrepancies exist for the following:

- temperatures were lower in comparison to the summer measurement campaign;
- salinity magnitude showed the same range as the summer measurements. During spring tides, the autumn peak salinities were larger in comparison with the summer values;
- a maximum suspended solids concentration after flood tide was absent during summer time for the bottom locations S-BACK and S-ENTRANCE. Also here, the autumn peak concentrations were larger when compared to the summer values.

With respect to the parameter gradients, many similarities can be seen between the different measurement campaigns. With respect to the parameters' magnitudes, the autumn measurements are ranged between the summer and winter 2007 measurements. The trends are all similar but some distinct differences exist:

Winter 2007:

- In comparison to the autumn measurements, the suspended solids concentration and salinity peak cross-dock gradients were pronounced more and less respectively;
- In comparison to the autumn measurements, the suspended solids concentration and temperature peak cross-dock gradients were more pronounced, but very limited;
- For all measurement locations, the peak solids concentrations and temperature vertical gradients were more pronounced when compared with the autumn measurement campaign.

Summer 2007:

- Bottom salinity peak cross-dock gradients were more pronounced when compared to the actual measurements. The same counted for temperature.

## 5.2. Near bed continuous monitoring 19/4/2006 – 23/5/2006

### 5.2.1. CDW frame data

Average concentrations per tidal phase in layers of 10 cm, measured by the ARGUS, vary from 0.2 to 388 mg/l. Higher concentrations occur in the lowest centimetres of the water column, but concentrations are generally alike over the whole length of the measuring rod. During flood, suspended sediment concentrations are higher than those measured during ebb.

It appears from the recorded data that the bottom is situated about 62 and 57 cm below the Altus sensor for the first and second deployment respectively (see week series in APPENDIX C). During the third deployment, the Altus sensor went out of range, which means that the distance between the sensor and the bottom was more than 75 cm. For the last deployment, it appears that de bottom is situated about 37 cm below the Altus sensor. After every high water disturbance of the bottom can be seen. During the first two deployments the same is seen, but not as much pronounced. Concerning the difference of the bottom elevation, this can vary a little depending on the deployment. Furthermore, some datasheets show a slight sedimentation after every high water.

Average velocities per tidal phase (ebb/flood) at 1 m above the bed vary from 0.2 up to 0.5 m/s; at 0.1 m above the bed, they vary from 0.1 up to 0.5 m/s (Figure 5-1). Average SS concentrations as measured by the RCM-9 turbidity sensor (top) are very similar to those measured by the lower sensor (Figure 5-2). This is in line with the measurements of the ARGUS.

When comparing the SS concentration measured by these sensors to the ARGUS sensors at the same height, it seems that the ARGUS gives lower values (2x and 2.5x lower for the upper and lower sensor respectively, see Figure 5-3 and Figure 5-4). However, it should be kept in mind that for the lower sensors the Valeport is mounted to the frame at a lower level than the lowest sensor of the ARGUS. Previous measurements showed the same trend. Post-calibration of the ARGUS is hard to do, but it is good to keep this conclusion in mind when analysing the ARGUS-data.

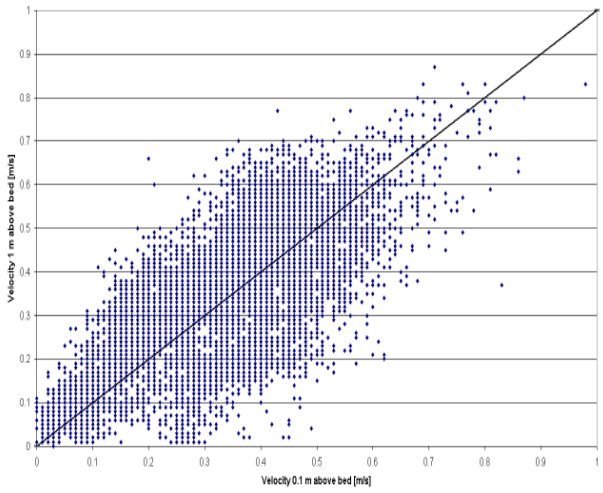


*Figure 5-1: Near bed current velocities (26/09/2007 – 05/12/2007) CDW frame*

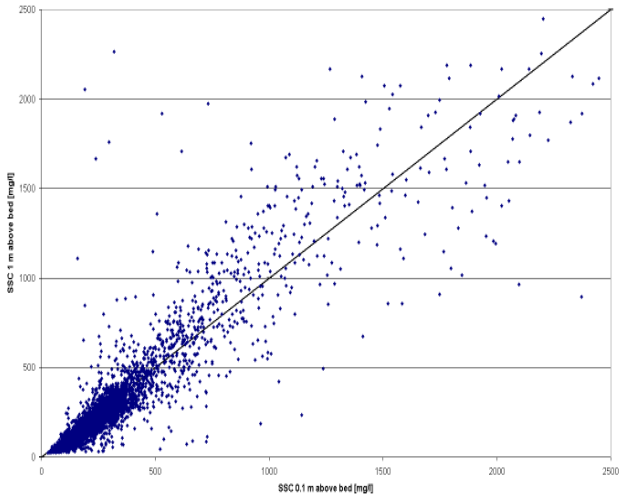


*Figure 5-2: Near bed SS concentrations (26/09/2007 – 05/12/2007) CDW frame*

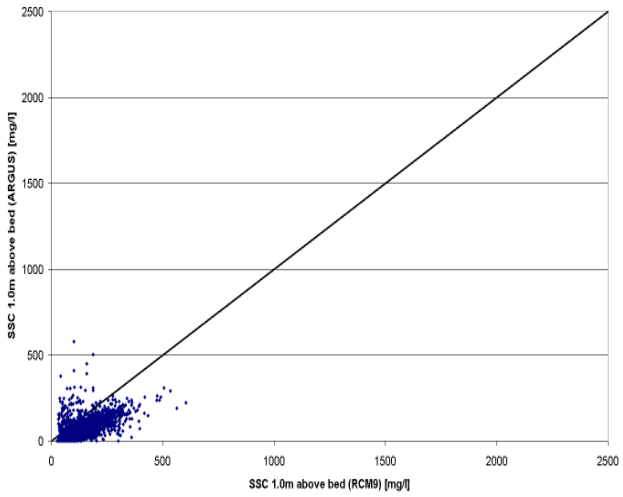


*Figure 5-3: ARGUS vs. Aanderaa RCM9 - 1m above bed (26/09/2007 – 05/12/2007) CDW Frame*

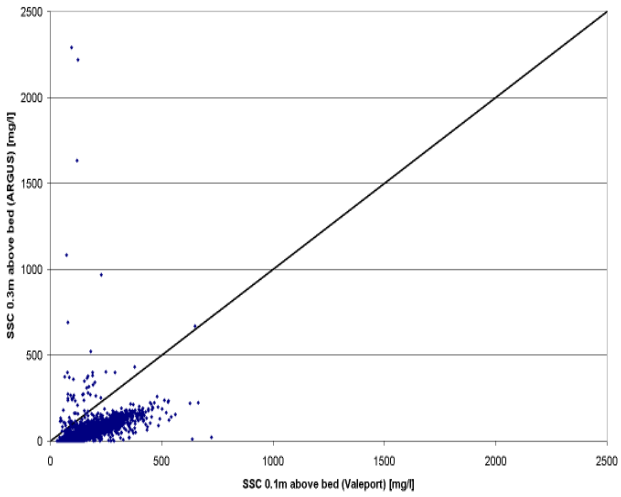


*Figure 5-4: ARGUS vs. Valeport - 0.3m resp. 0.1m above bed (26/09/2007 – 05/12/2007) CDW frame*

### 5.2.2. Sill frame data

Average concentrations per tidal phase in layers of 10 cm, measured by the ARGUS vary from 11 to 935 mg/l. The highest concentrations occur in the lowest centimetres of the water column as expected. During flood, suspended sediment concentrations are higher than those measured during ebb. In the weekseries (APPENDIX C) there can be seen that the lowest sensors constantly measured high values. During a previous campaign the same was noticed, which indicates that these sensors probably are broken. This is also the reason why not the lowest sensor was taken to compare the measurements of the ARGUS with those of the Valeport for the Sill frame (see §4.3.3).

It appears from the recorded data that the bottom is situated between 25 cm and 48 cm below the Altus sensor. Depending on the deployment, this can vary a little (see weekseries APPENDIX C). Furthermore, it seems that some sedimentation occurs.

Average velocities per tidal phase (ebb/flood) at 1 m above the bed vary from 0.1 up to 0.3 m/s; at 0.1 m above the bed, they vary from 0.1 up to 0.2 m/s (Figure 5-5). Average SS concentrations measured by the RCM-9 turbidity sensor are smaller than those measured by the lower sensor (Valeport MIDAS) (Figure 5-6). When comparing the Altus sensors to the ARGUS at the same height, it seems that the ARGUS gives 2x lower values than the Valeport (see Figure 5-8). However, it should be kept in mind that the Valeport is mounted to the frame at a lower level than the lowest sensor of the ARGUS.

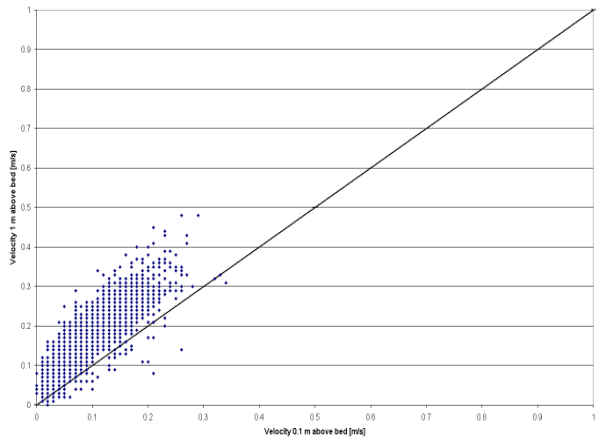


*Figure 5-5: Near bed current velocities (31/10/2007 – 14/11/2007) Sill frame*

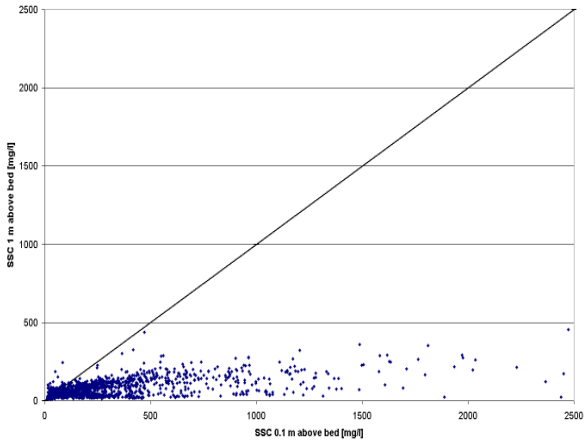


*Figure 5-6: Near bed SS concentrations (31/10/2007 – 14/11/2007) Sill frame*

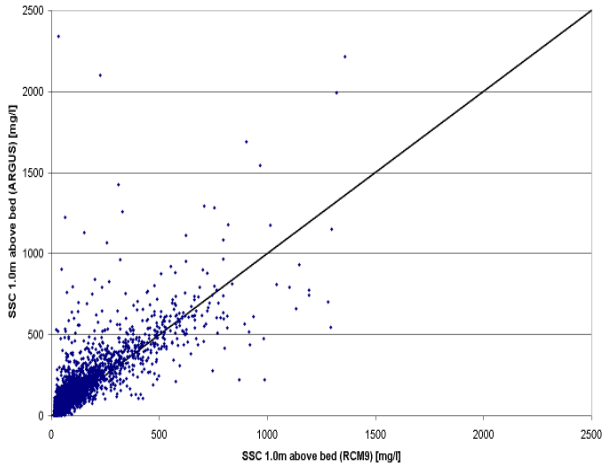


*Figure 5-7: ARGUS vs. Aanderaa RCM9 - 1m above bed Sill Frame*

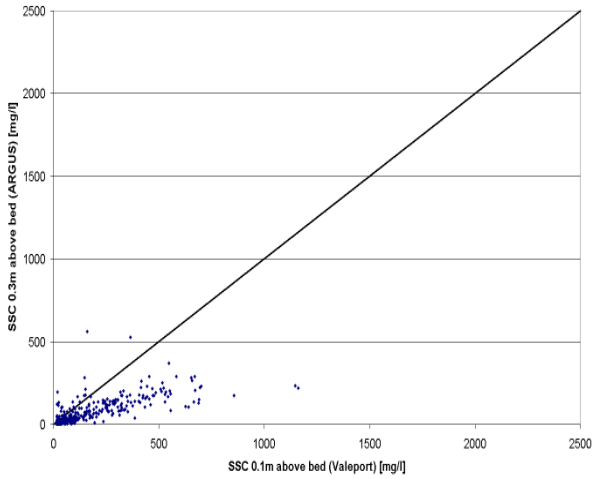


*Figure 5-8: ARGUS vs. Valeport - 0.3m resp. 0.1m above bed Sill frame*

### 5.2.3. Comparison with previous measurements

Previous measurements at the same locations were executed as part of the HCBS project (17/02/2005 – 03/03/2005, 14/03/2006 – 05/04/2006) and as part of the first part of this project (spring: 19/04/2006 – 23/05/2006; summer: 18/07/2006 – 11/10/2006; winter: 09/02/2007 – 18/04/2007). The frame measurements of this autumn measurement campaign will be compared to the summer measurements of 2006 since these measurements were more or less executed during the same time of the year. Comparison will be made for a period of comparable tidal amplitudes, i.e. 11/08/2006 – 18/08/2006 and 26/10/2007 – 02/11/2007.

Table 5-1 gives an overview of the abbreviations used in the figures for the comparison of the measurement campaigns of the Deurganckdok project. Also the measurement period is given.

*Table 5-1: Measurement period and abbreviations used for the comparison of the frame measurements of the Deurganckdok project*

| ***Measurement campaign*** | ***Period*** | ***Abbreviation*** |
|---|---|---|
| Summer measurements 2006 | 18/07/2006 – 11/10/2006 | DGD summer |
| Autumn measurements 2007 | 26/09/2007 – 05/12/2007 | DGD autumn |

#### *5.2.3.1. CDW frame*

Comparing the average concentration per tidal phase in layers of 10 cm as measured by the ARGUS, for a period of comparable tidal amplitudes, it is observed that tidal changes are similar (larger value near high water than near low water). Generally, slightly higher concentrations were measured during the summer measurements. Figure 5-9 gives a comparison of the ARGUS sensors 67 to 76 (sensor 1 = uppermost sensor). Notice that during the measurements the ARGUS was mounted to the frame at a higher position during the autumn measurements, which can explain the lower measured concentrations (11 cm higher during autumn measurements).

The bottom variations measured by the CDW frame during a period of comparable tidal amplitudes are very alike (Figure 5-10). Average echosounder – bottom distances seem to be larger for the autumn measurements. Notice that, during the autumn measurements, the Altus was mounted to

the frame about 7 cm higher than during the summer measurements. This means that the difference between the distances measured during autumn and those measured during summer is about 10 cm. This may indicate that more sedimentation occurred during summer, but also a slight different location can explain the difference. As mentioned before, it is difficult to reposition the frame at exactly the same location.

Comparing average suspended sediment concentrations measured at 1m above the bed (RCM9), during a period of comparable tidal amplitudes, it seems that slightly higher values are measured during this autumn measurement campaign (Figure 5-11). Further the same trend can be noticed. Average velocities 1m above the bed are more or less the same as during the summer measurement campaign (Figure 5-12). No data of the suspended sediment concentrations and velocities measured 0.1m above the bed (Valeport) were obtained during the summer measurements for the considered period due to problems with the Valeport (IMDC 2006n). During all measurements, RCM9 was mounted to the frame at nearly the same height.

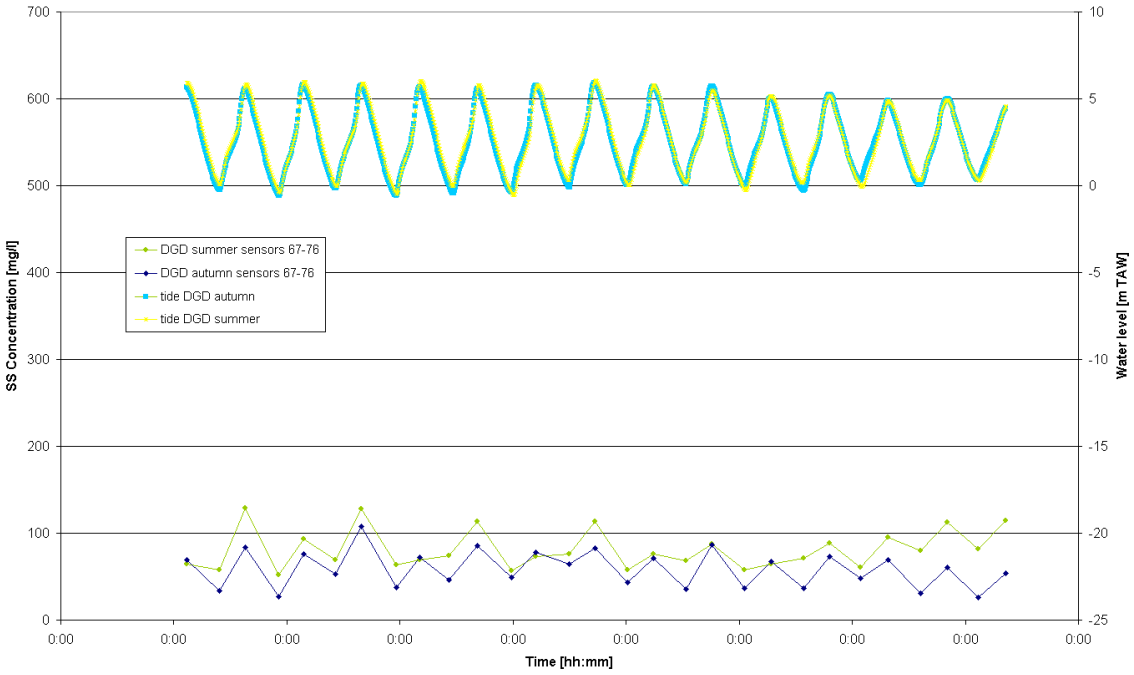


*Figure 5-9: Average concentration per tidal phase for ARGUS sensors 67-76 (DGD autumn vs.DGD summer) [CDW frame]*

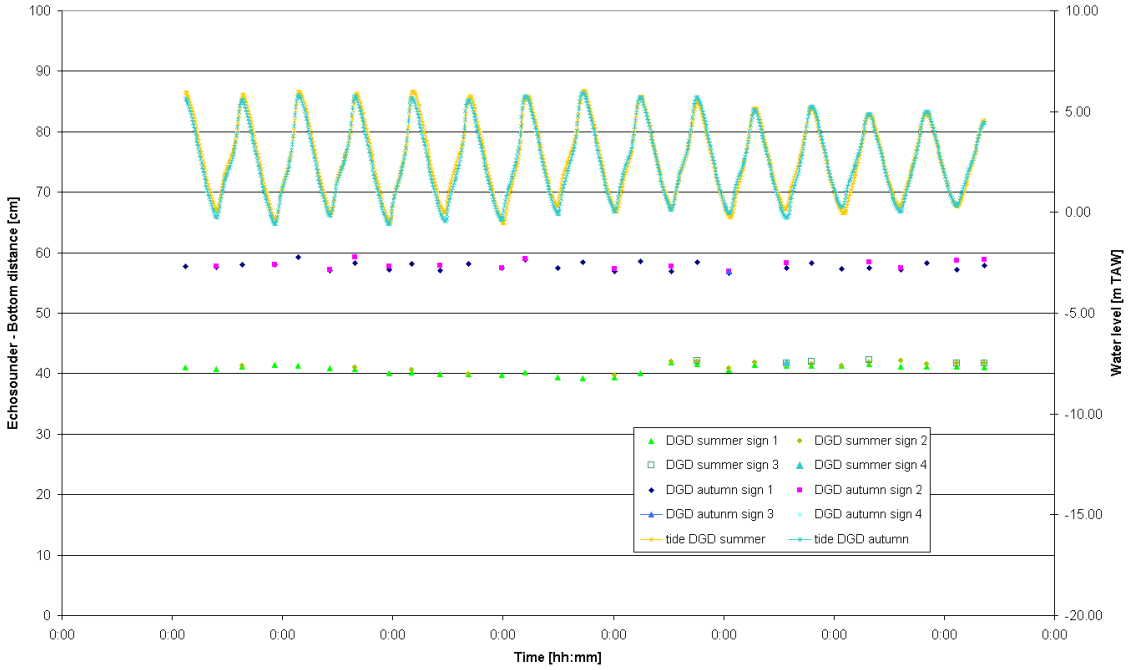


*Figure 5-10: Echosounder - bottom variation for each HW/LW (DGD autumn vs. DGD summer) [CDW frame]*

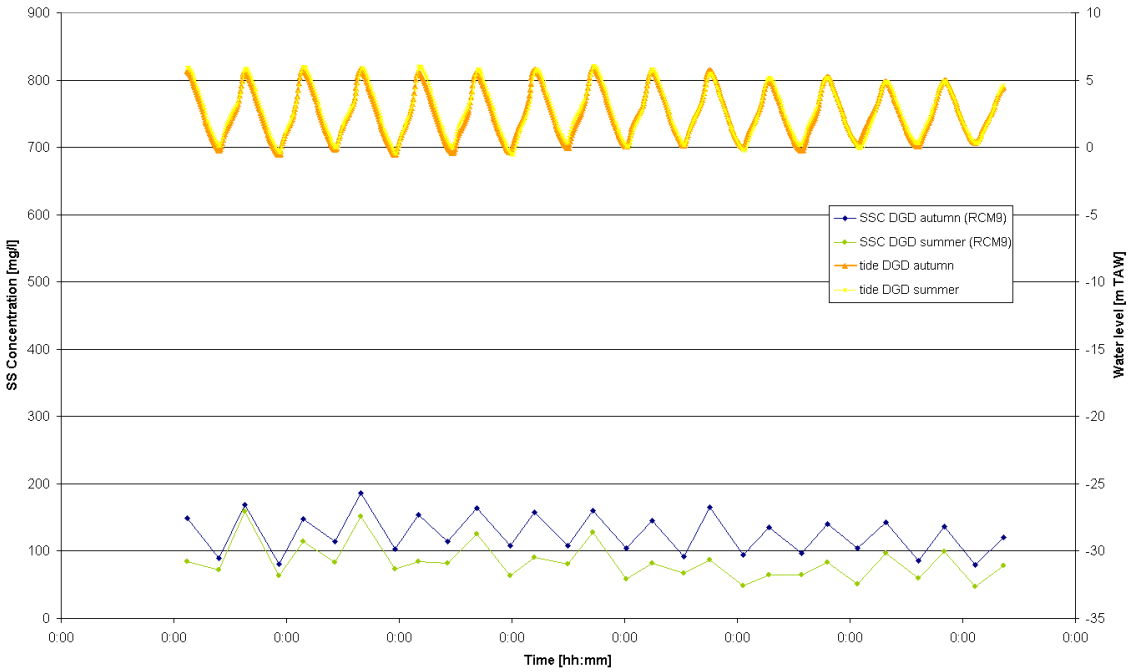


*Figure 5-11: Average concentration per tidal phase 1.0m above the bed (DGD autumn vs. DGD summer) [CDW frame]*

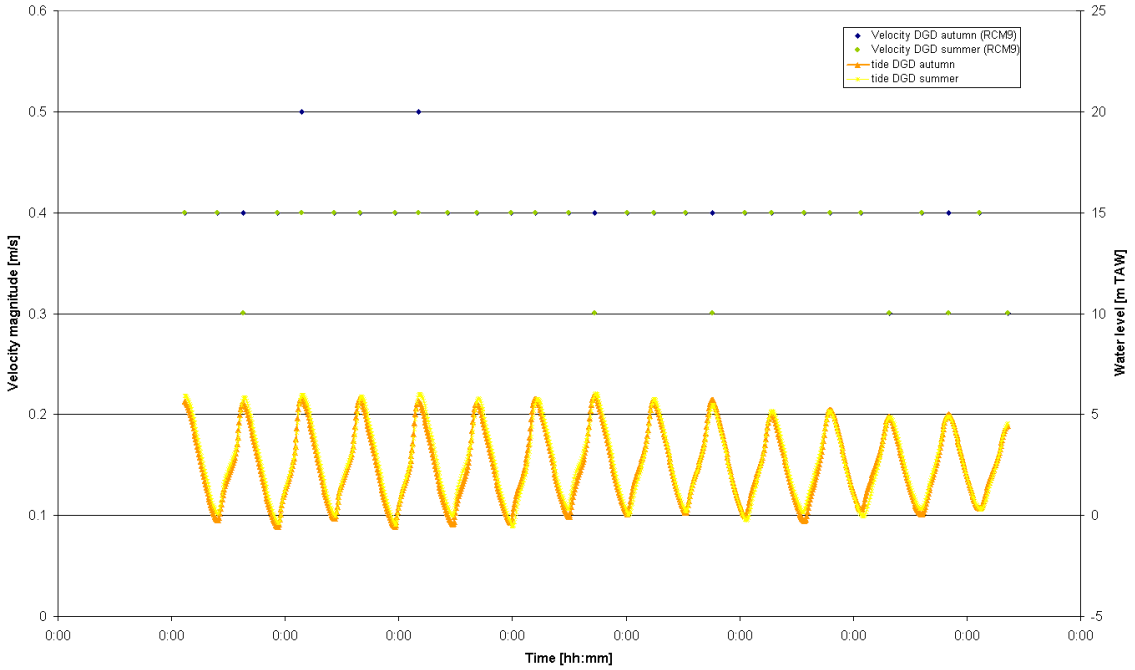


*Figure 5-12: Average velocity magnitude per tidal phase 1.0m above the bed (DGD autumn vs. DGD summer) [CDW frame]*

### *5.2.3.2. Sill frame*

Concerning the Sill frame, a different period of comparable tidal amplitudes is considered (28/07/2006 – 02/08/2006 & 13/10/2007 – 18/10/2007).

Comparing the average SS concentration per tidal phase in layers of 10 cm measured by the ARGUS, for a period of comparable tidal amplitudes, it is seen that during summer higher concentrations were measured. This is due to bio-fouling on the instrument during the summer measurement campaign (IMDC, 2006n). Hence, a good comparison is not possible. Nevertheless Figure 5-13 gives a comparison of the ARGUS sensors 67 to 76 (sensor 1 = uppermost sensor).

Figure 5-14 gives the summer and autumn echosounder measurements of the bottom variations for comparable tidal amplitudes. During both measurements the Altus was mounted to the frame 7 cm higher during autumn measurements. So, the distance between the bottom and the sensor would be almost the same during the considered period.

When comparing average suspended sediment concentrations measured 1 m above the bed (RCM9), during a period of comparable tidal amplitudes, both measurements seem similar (Figure 5-15). Variations are also similar but small. Average velocities 1m above the bed are similar during winter and summer measurements (Figure 5-16). Also this instrument was mounted at almost the same height during the measurement campaigns

During the period of comparable tidal amplitudes, the Valeport MIDAS mounted on the Sill frame obtained no data during the autumn measurements.

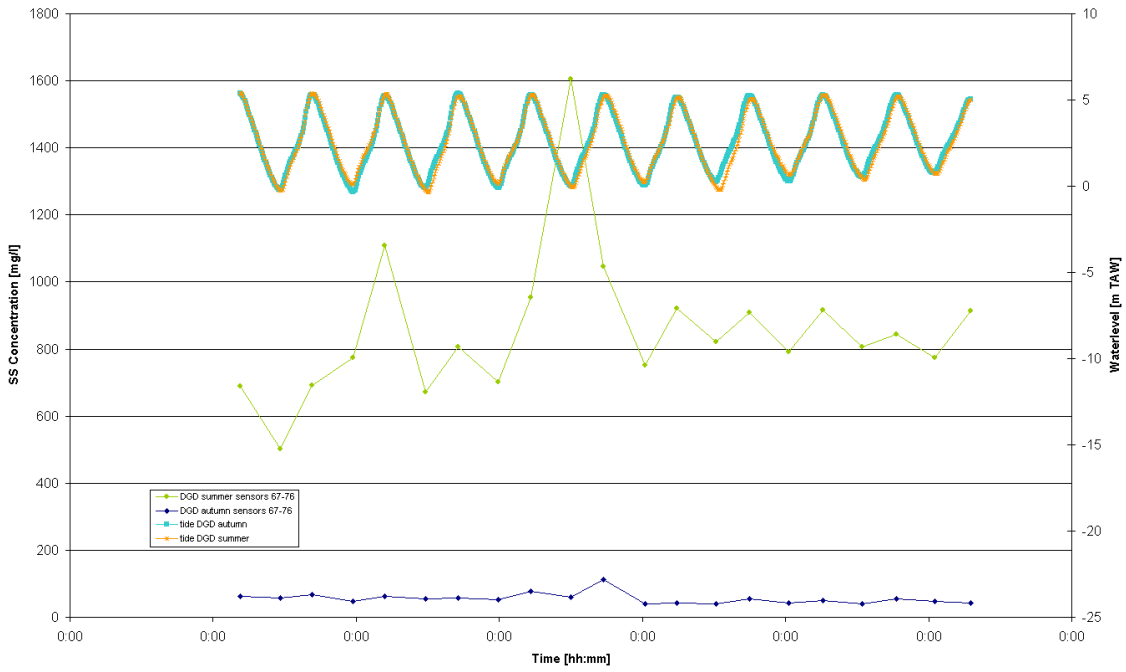


*Figure 5-13: Average concentration per tidal phase for ARGUS sensors 67-76 (DGD autumn vs.DGD summer) [Sill frame]*

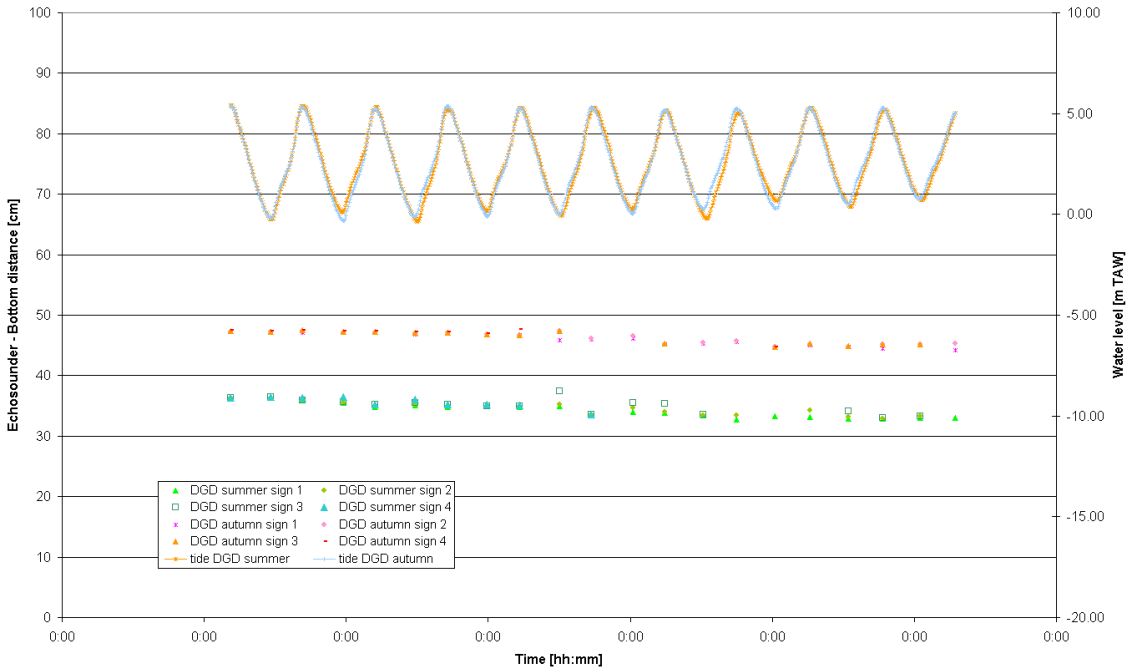


*Figure 5-14: Echosounder - bottom variation for each HW/LW (DGD autumn vs. DGD summer) [Sill frame]*

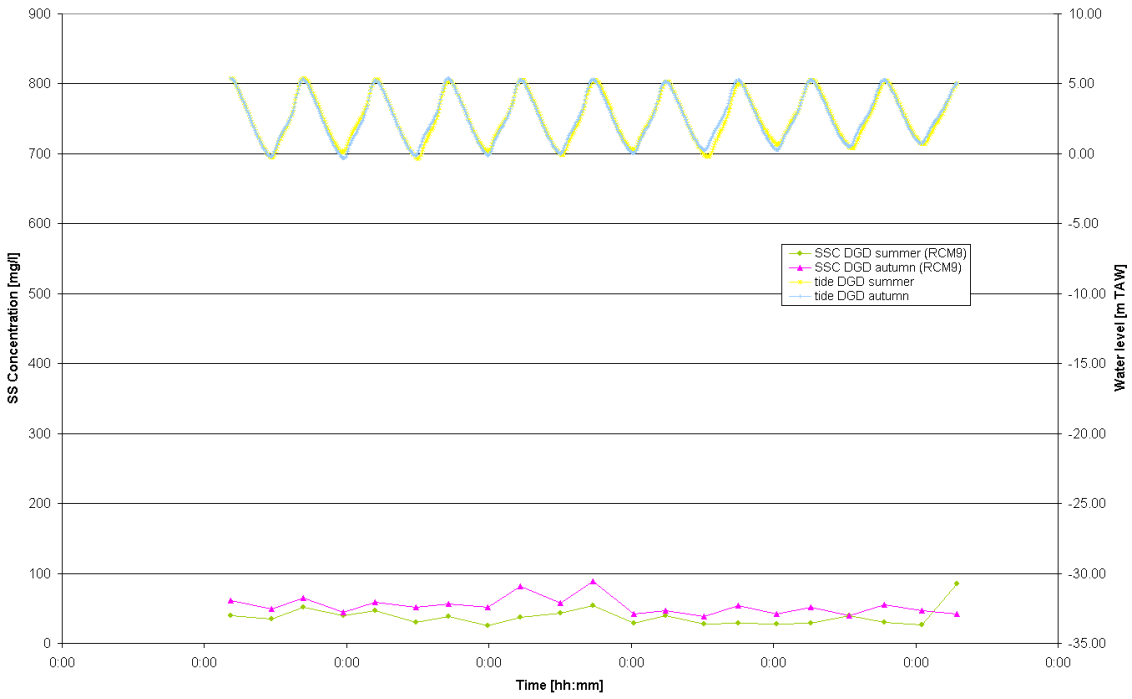


*Figure 5-15: Average concentration per tidal phase 1.0m above the bed (DGD autumn vs. DGD summer) [Sill frame]*

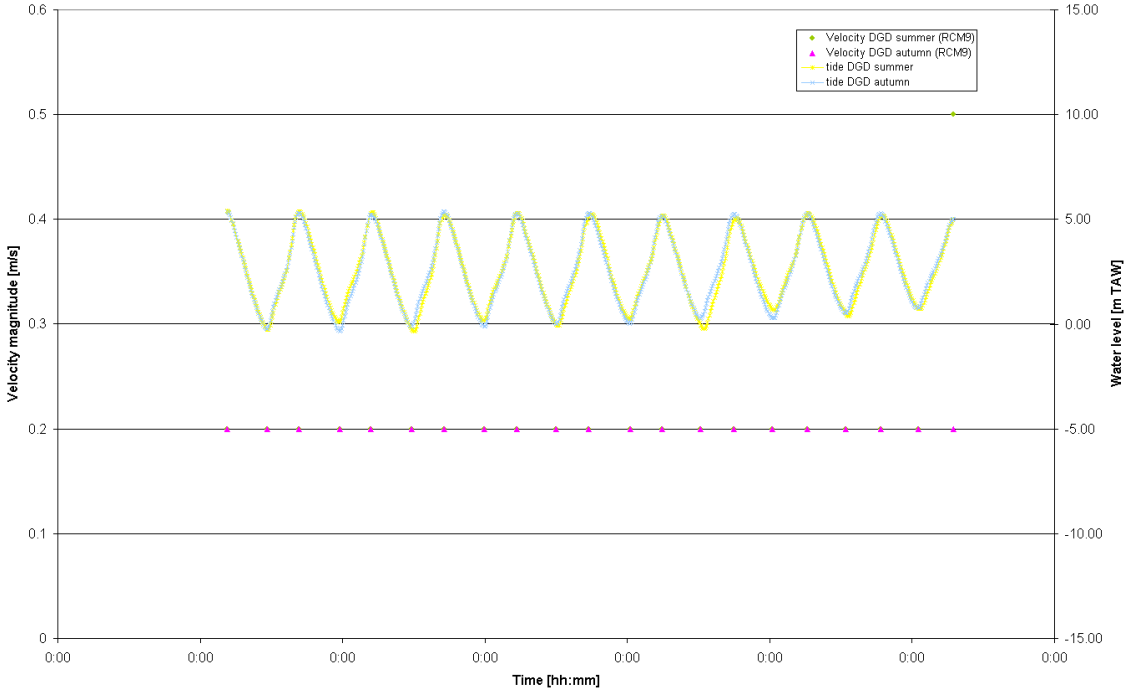


*Figure 5-16: Average velocity magnitude per tidal phase 1.0m above the bed (DGD autumn vs. DGD summer) [Sill frame]*

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IMDC (2007g) Langdurige metingen Deurganckdok: Opvolging en analyse aanslibbing. Deelrapport 2.2 Through tide measurement SiltProfiler 26/09/2006 Stream (I/RA/11283/06.068/MSA)

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# APPENDIX A.

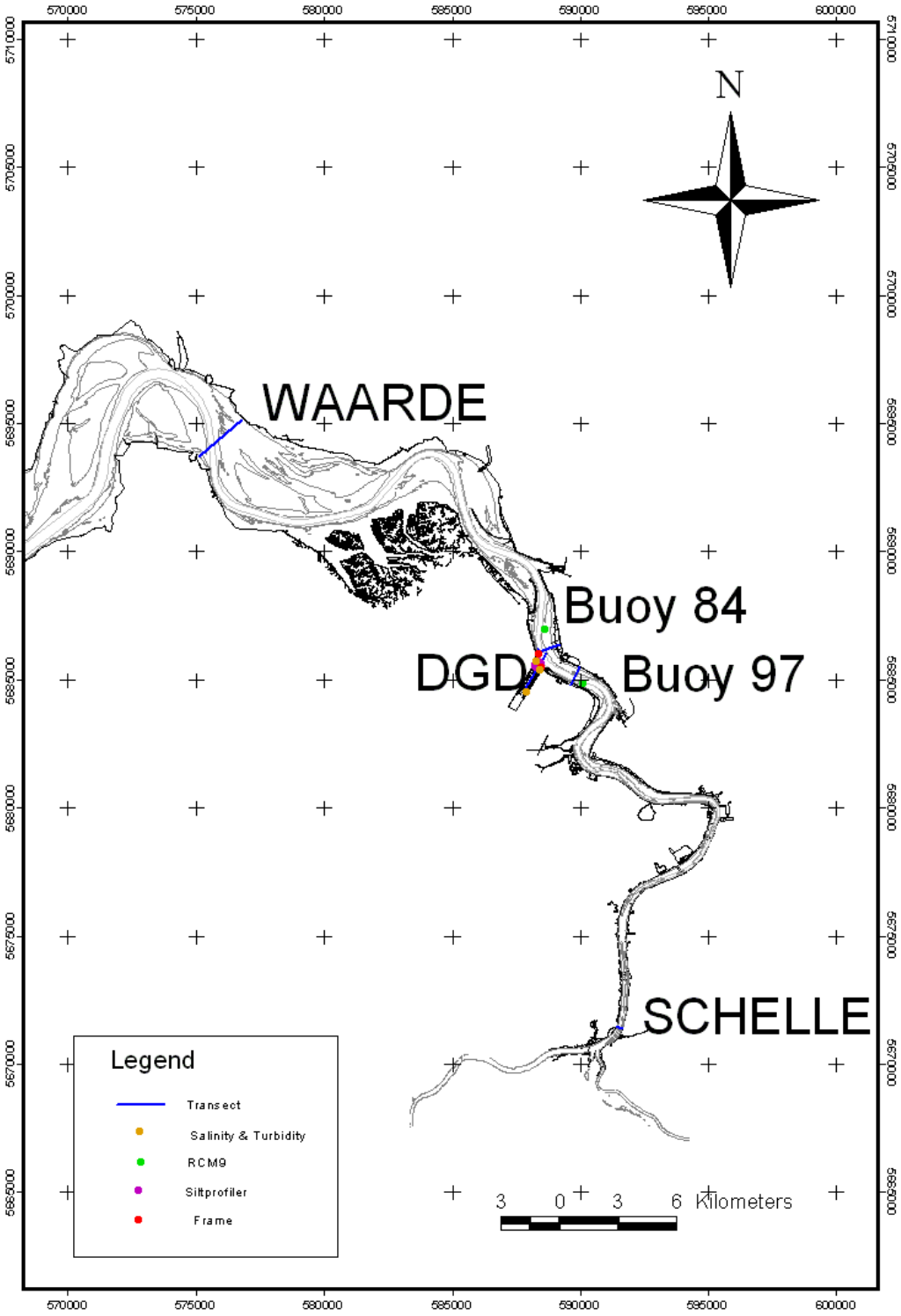
# OVERVIEW OF MEASUREMENTS

# A.1 Overview of the measurement locations for the whole HCBS 2 measurement campaign & DGD measurement campaign (1 & 2)

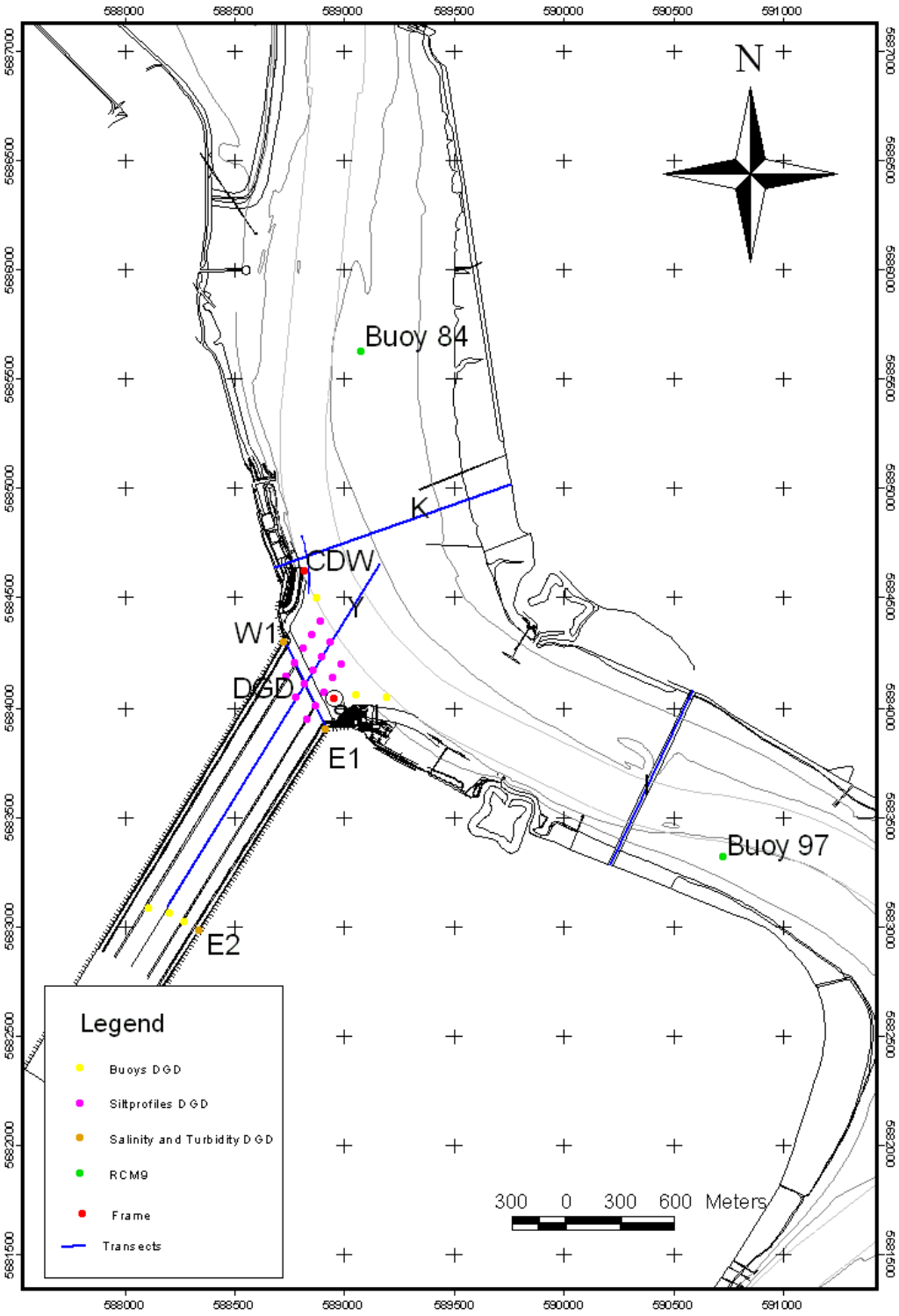
| **Through tide measurements: Transects** | | | | | |
|---|---|---|---|---|---|
| *Location* | *Easting (UTM ED 50)* | | *Northing (UTM ED 50)* | | *Period* |
| Deurganckdok (in dock) | *Left Bank* | *Right Bank* | *Left Bank* | *Right Bank* | 21/03/2006 & 26/09/2006 |
| (transect Y) | *589059* | 591298 | *5684948* | *5683077* | |
| Liefkenshoek | *Left Bank* | *Right Bank* | *Left Bank* | *Right Bank* | 22/03/2006 & 27/09/2006 |
| (transect I) | 590318 | 590771 | 5684257 | 5683302 | |
| Deurganckdok (downstream) | *Left Bank* | *Right Bank* | *Left Bank* | *Right Bank* | 22 & 23/03/2006 & 27 & 28/09/2006 |
| (transect K) | 588484 | 589775 | 5684924 | 5685384 | |
| Deurganckdok (in dock) | *Left Bank* | *Right Bank* | *Left Bank* | *Right Bank* | 22/03/2006 & 27/09/2006 |
| (transect DGD) | 588765 | 588541 | 5684056 | 5684527 | |
| Schelle | *Left Bank* | *Right Bank* | *Left Bank* | *Right Bank* | 23/03/2006 & 28/09/2006 |
| (transect S) | 592645 | 592953 | 5665794 | 5665682 | |
| Waarde | *Left Bank* | *Right Bank* | *Left Bank* | *Right Bank* | 23/03/2006 & 28/09/2006 |
| (transect W) | 573541 | 571318 | 5696848 | 5694933 | |
| Deurganckdok (in dock) | *Left Bank* | *Right Bank* | *Left Bank* | *Right Bank* | 21/03/2006 & 26/09/2006 |
| (transect au-bu) | 588561 | 588682 | 5684369 | 5684113 | |
| Deurganckdok (in dock) | *Left Bank* | *Right Bank* | *Left Bank* | *Right Bank* | 24/10/2007 |
| (transect ad-bd) | 588623 | 588745 | 5684470 | 5684214 | |
| **Through tide measurements: Siltprofiler gauging points** | | | | | |
| *Location* | *Easting (UTM ED 50)* | | *Northing (UTM ED 50)* | | *Period* |
| Location 1: Xa | 588549 | | 5684335 | | 21/03/2006 & 26/09/2006 & 23/10/2007 |
| Location 2: Xb | 588596 | | 5684411 | | |
| Location 3: Xc | 588643 | | 5684486 | | |

| **Through tide measurements: Siltprofiler gauging points** | | | |
|---|---|---|---|
| *Location* | *Easting (UTM ED 50)* | *Northing (UTM ED 50)* | *Period* |
| Location 4: Xd | 588690 | 5684562 | 21/03/2006 & 26/09/2006 & 23/10/2007 |
| Location 5: Xe | 588737 | 5684638 | |
| Location 6: Ya | 588606 | 5684217 | |
| Location 7: Yb | 588653 | 5684293 | |
| Location 8: Yc | 588700 | 5684368 | |
| Location 9: Yd | 588747 | 5684444 | |
| Location 10: Ye | 588793 | 5684520 | |
| Location 11: Za | 588662 | 5684099 | |
| Location 12: Zb | 588709 | 5684174 | |
| Location 13: Zc | 588756 | 5684250 | |
| Location 14: Zd | 588803 | 5684326 | |
| Location 15: Ze | 588850 | 5684402 | |
| **Near bed continuous monitoring** | | | |
| *Location* | *Easting (UTM ED 50)* | *Northing (UTM ED 50)* | *Period* |
| Deurganckdok CDW | 588653 | 5684906 | 14/03/2006 – 05/04/2006 |
| Deurganckdok CDW | 588685 | 5684880 | 19/04/2006 – 23/05/2006 |
| Deurganckdok Sill | 588805 | 5684170 | 19/04/2006 – 23/05/2006 |
| Deurganckdok CDW | 588685 | 5684880 | 18/07/2006 – 11/10/2006 |
| Deurganckdok Sill | 588805 | 5684170 | 19/07/2006 – 11/10/2006 |
| Deurganckdok CDW | 588685 | 5684880 | 15/03/2007 – 12/04/2007 |
| Deurganckdok Sill | 588805 | 5684170 | 09/02/2007 – 18/04/2007 |
| Deurganckdok CDW | 588573 | 5684677 | 09/02/2007 – 05/12/2007 |
| Deurganckdok Sill | 588697 | 5683941 | 10/10/2007 – 28/11/2007 |
| **Salt Silt measurements Deurganckdok** | | | |
| *Location* | *Easting (UTM ED 50)* | *Northing (UTM ED 50)* | *Period* |
| P&O 1 | 588074 | 5682942 | 17/03/2006 – 28/04/2006 |
| P&O 2 | 588767 | 5684045 | 17/03/2006 – 28/04/2006 |

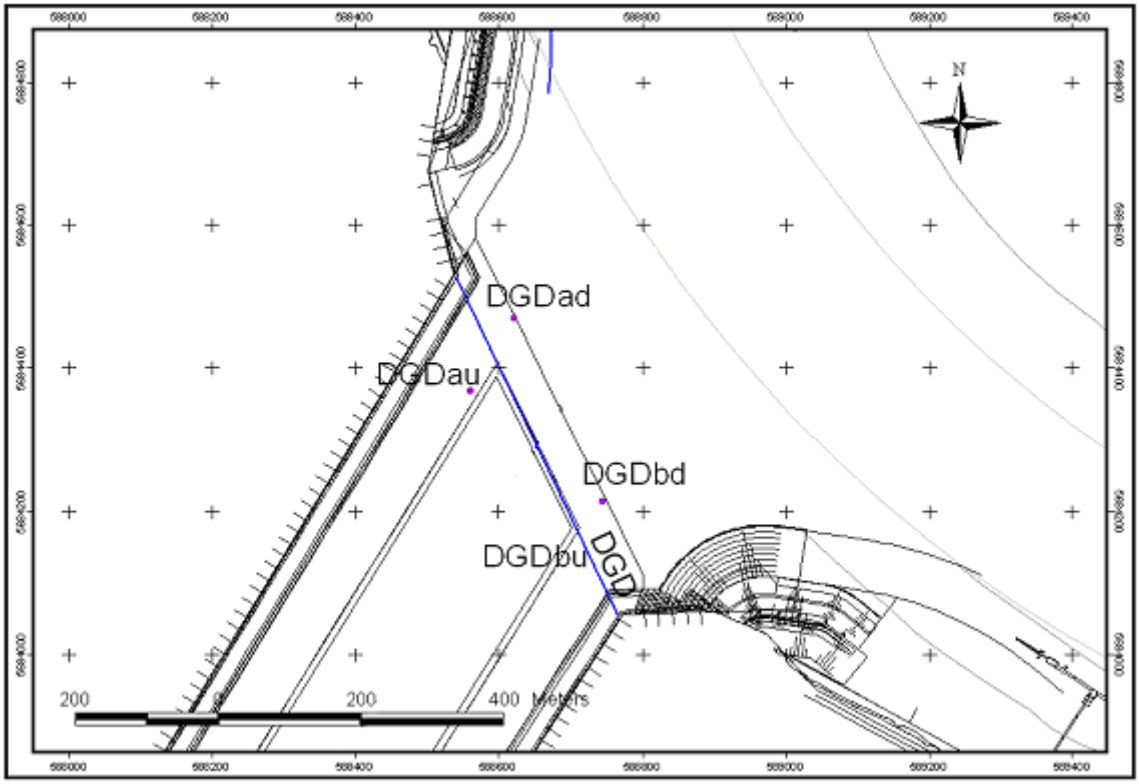
| | | | |
|---|---|---|---|
| PSA | 588536 | 5684523 | 17/03/2006 – 28/04/2006 |
| P&O 1 | 588074 | 5682942 | 20/07/2006 – 12/10/2006 |
| P&O 2 | 588767 | 5684045 | 20/07/2006 – 12/10/2006 |
| PSA | 588536 | 5684523 | 20/07/2006 – 12/10/2006 |
| P&O 1 | 588074 | 5682942 | 12/02/2007 – 27/03/2006 |
| P&O 2 | 588767 | 5684045 | 12/02/2007 – 27/03/2006 |
| PSA | 588536 | 5684523 | 12/02/2007 – 27/03/2006 |
| P&O 1 | 588074 | 5682942 | 18/09/2007 – 18/12/2006 |
| P&O 2 | 588767 | 5684045 | 18/09/2007 – 18/12/2006 |
| PSA | 588536 | 5684523 | 18/09/2007 – 18/12/2006 |
| **Settling velocity – INSSEV** | | | |
| *Location* | *Easting (UTM ED 50)* | *Northing (UTM ED 50)* | *Period* |
| Deurganckdok CDW | 588717 | 5684898 | 05/09/2006 |
| Deurganckdok SILL | 588800 | 5684250 | 06/09/2006 |
| Deurganckdok Western quay wall | 588452 | 5684355 | 07/09/2006 |



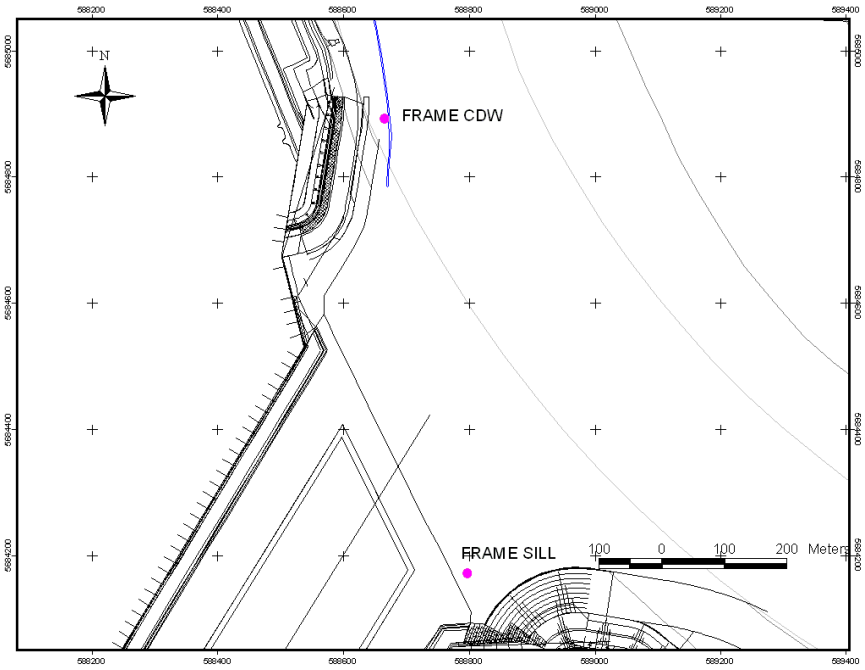

*Overview of the measurement locations*
*21/03/2006 – 23/03/2006 & 26/09/2006 – 28/09/2006*



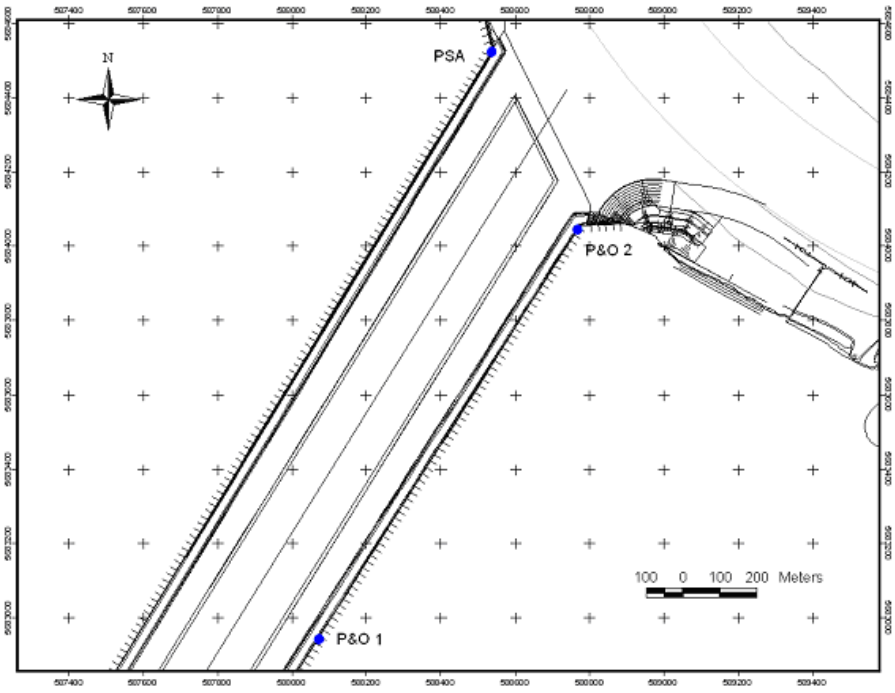

*Overview of the measurement locations in Deurganckdok*
*21/03/2006 – 23/03/2006 & 26/09/2006 – 28/09/2006 & 23/10/2007*



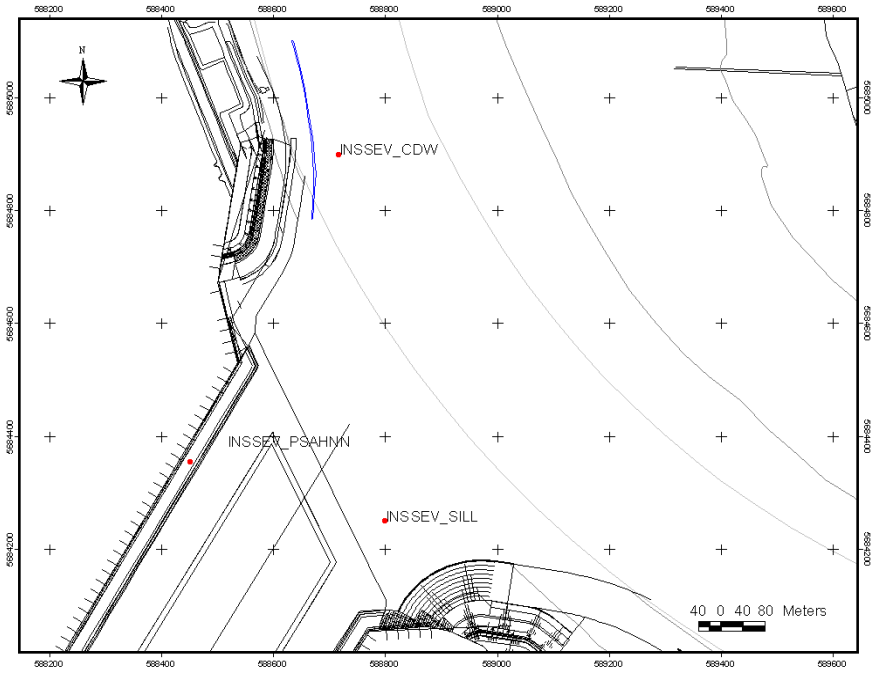

*Overview measurement locations in Deurganckdok 24/10/07*



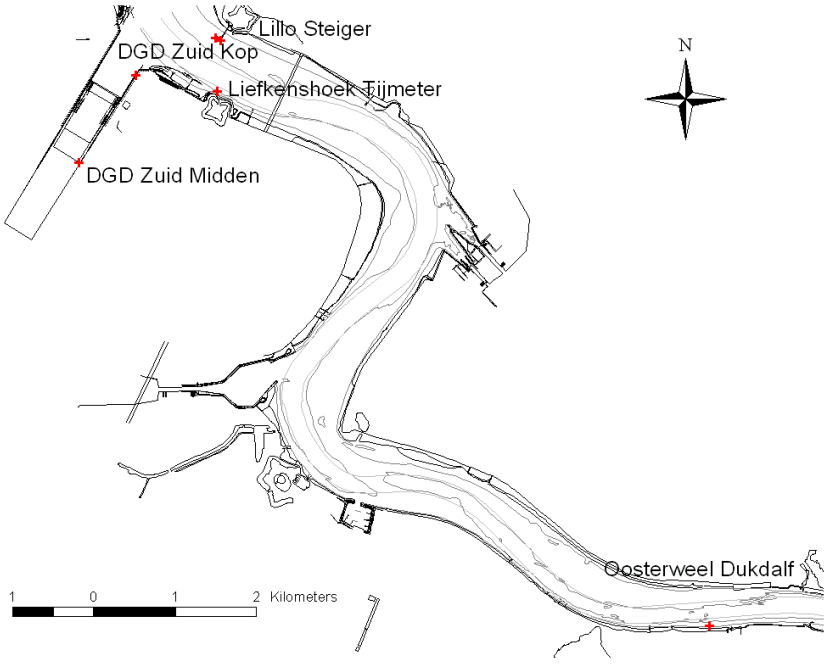

*Near bed continuous monitoring*
*14/03/2006 – 05/04/2006 & 19/04/2006 – 23/05/2006 & 18/07/2006 – 11/10/2006 & 09/02/2007 – 18/04/2007*



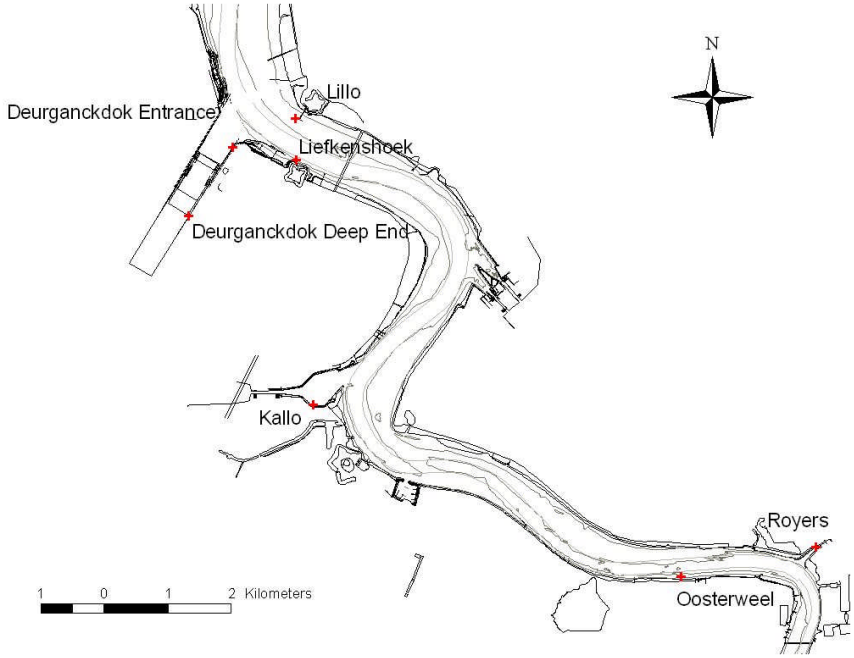

*Long term salt-silt measurements in Deurganckdok*
*17/03/2006 – 28/04/2006 & 20/07/2006 – 12/10/2006 & 12/02/2007 – 27/03/2007*



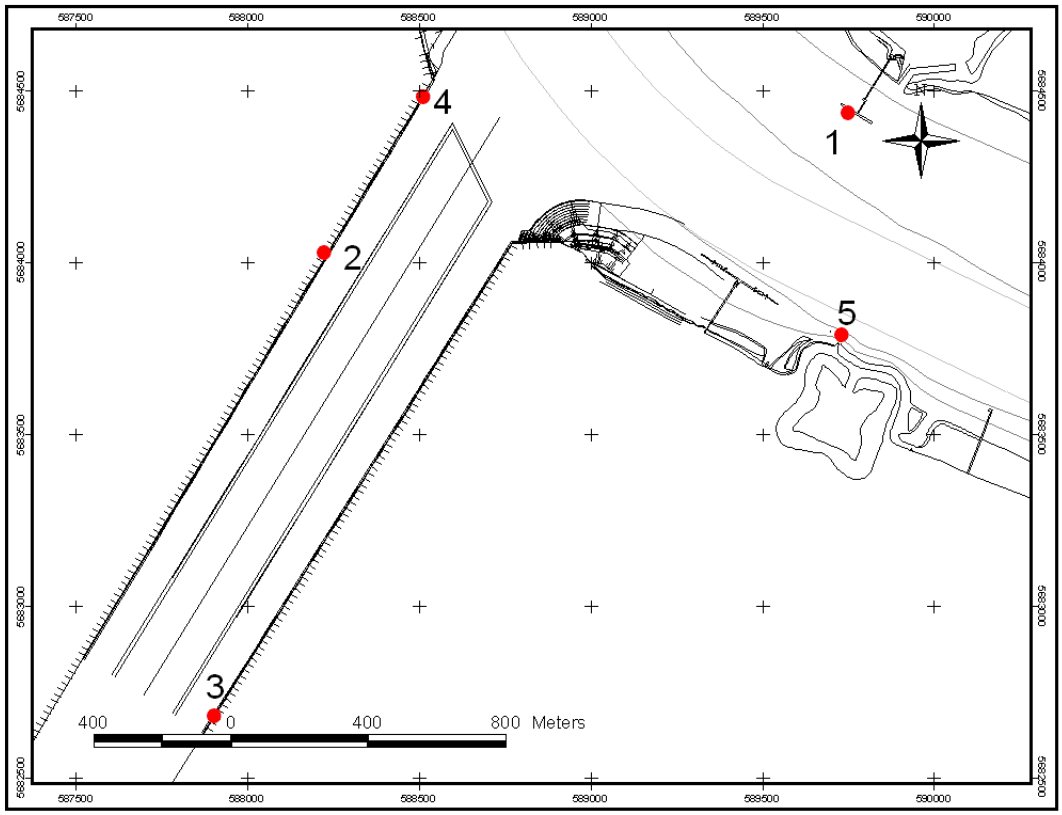

*Settling velocity (INSSEV) 05/09/2006 – 07/09/2006*




*Calibration measurements - 15/03/2006 & 14/04/2006*




*Calibration measurements - 23/06/2006 & 18/09/2006*




*Calibration measurements 10/09/2007*

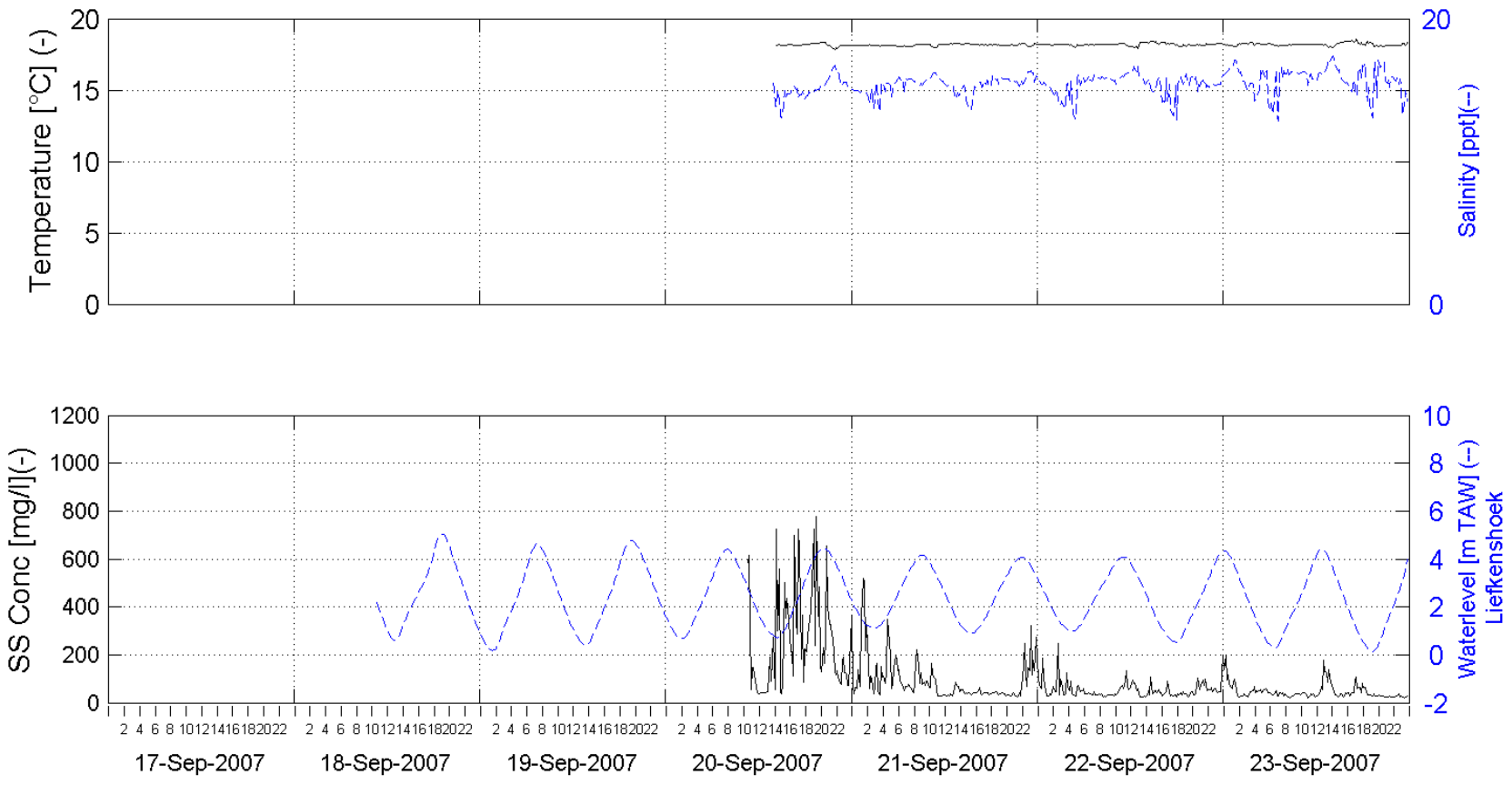
# APPENDIX B.

# WEEKSERIES ZOUT- SLIB METINGEN DGD

# B.1 PSA (N-ENTRANCE)

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 38 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

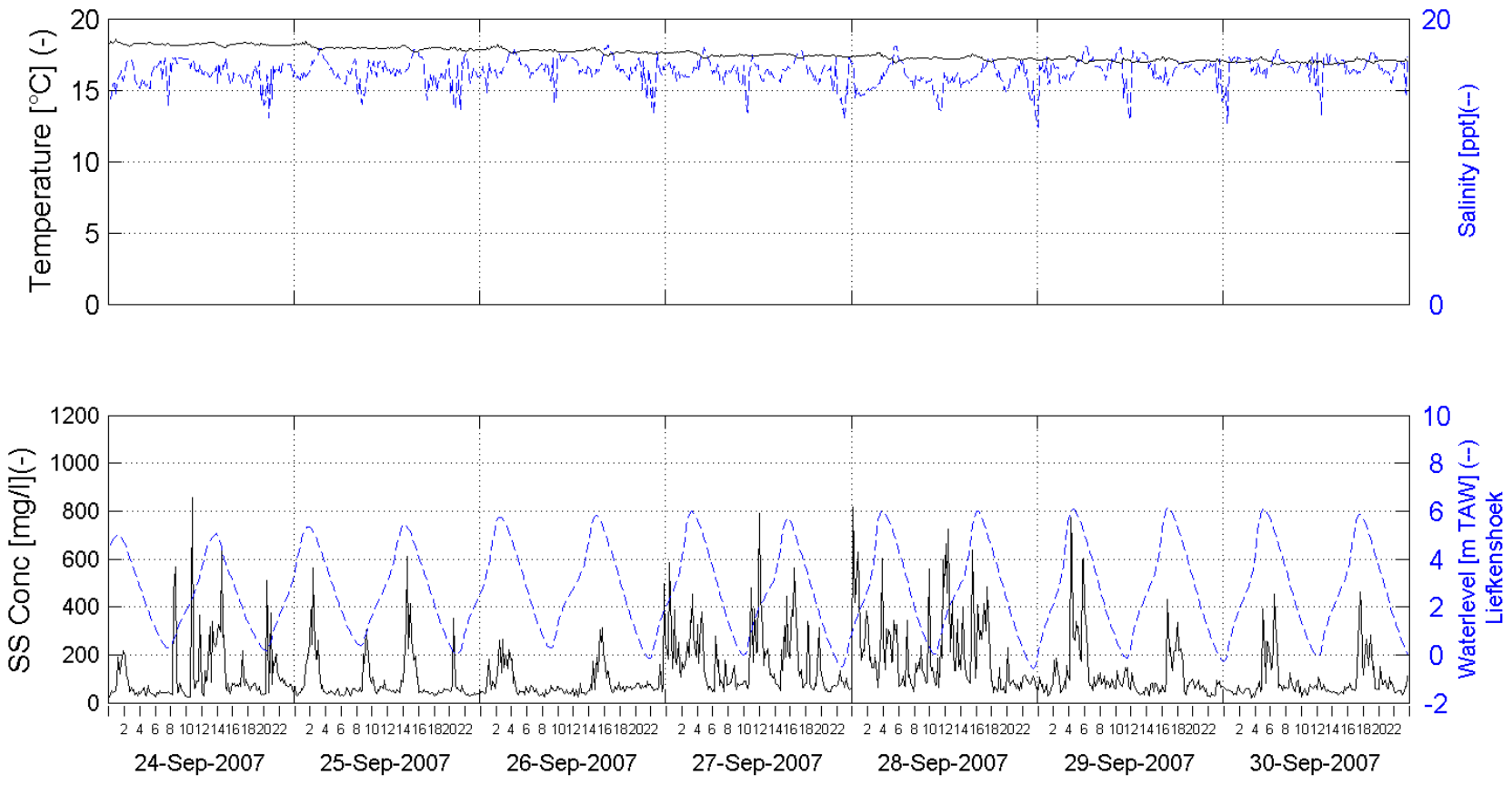
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 39 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

IMDC

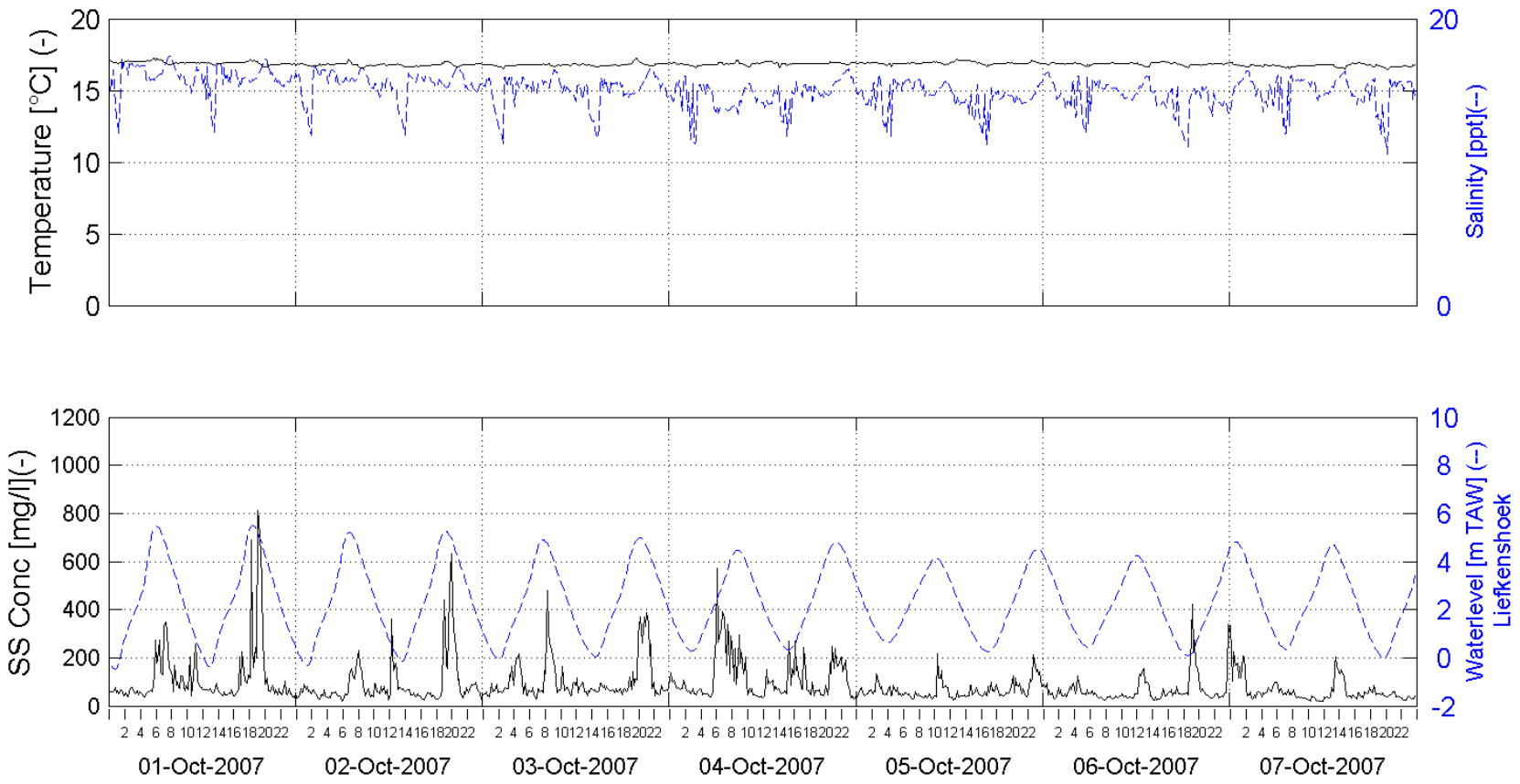
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 40 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

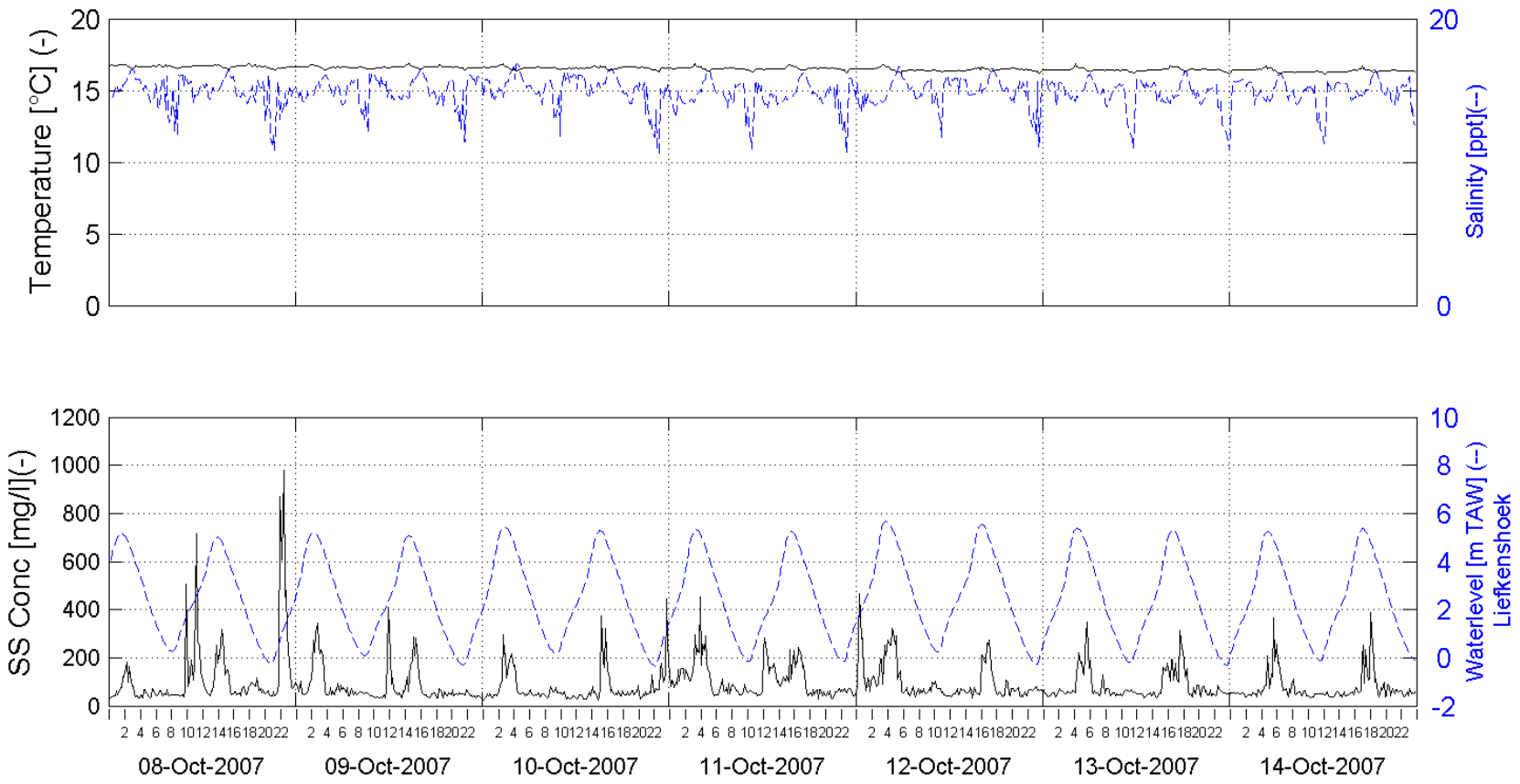
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 41 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

IMDC

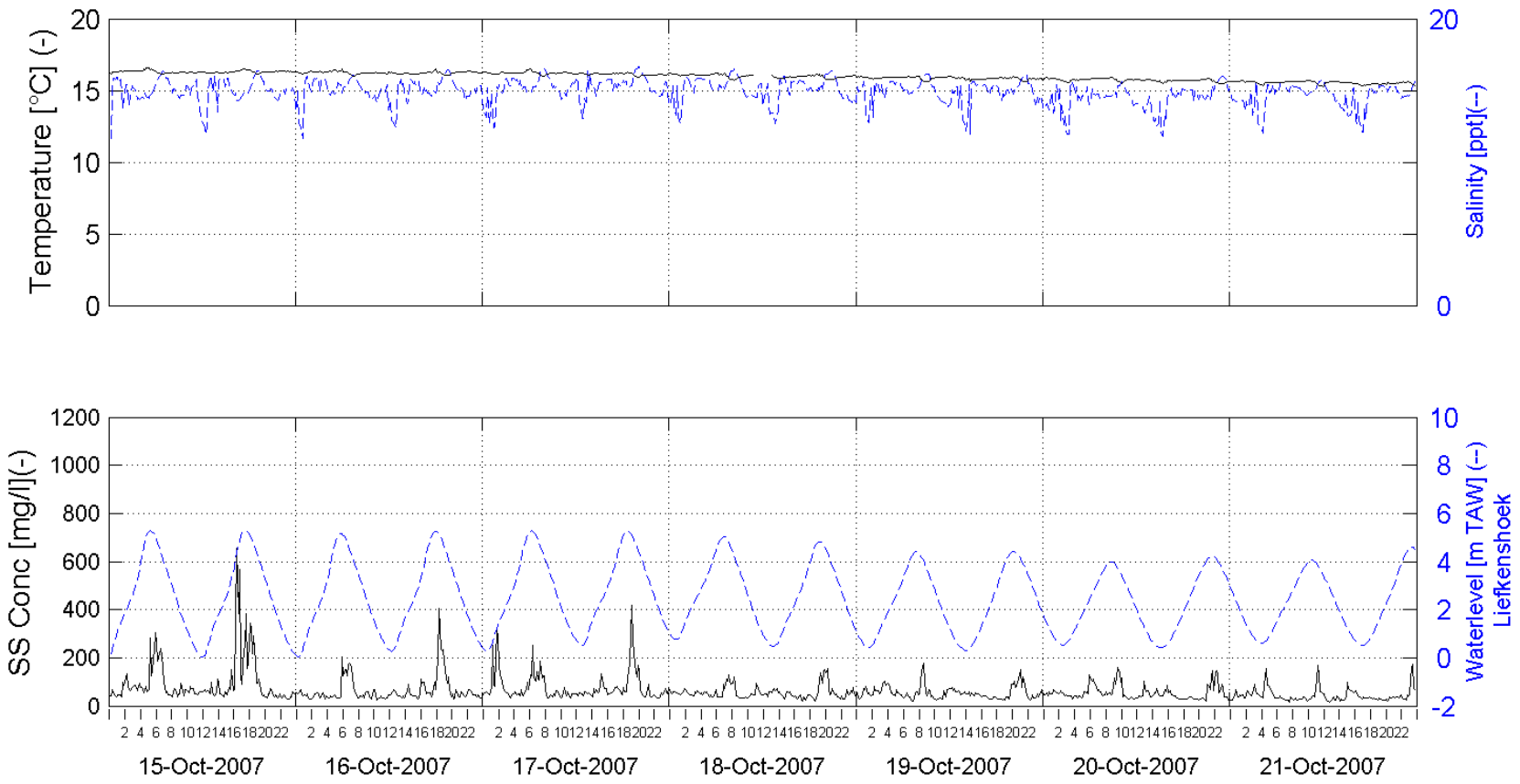
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 42 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

IMDC

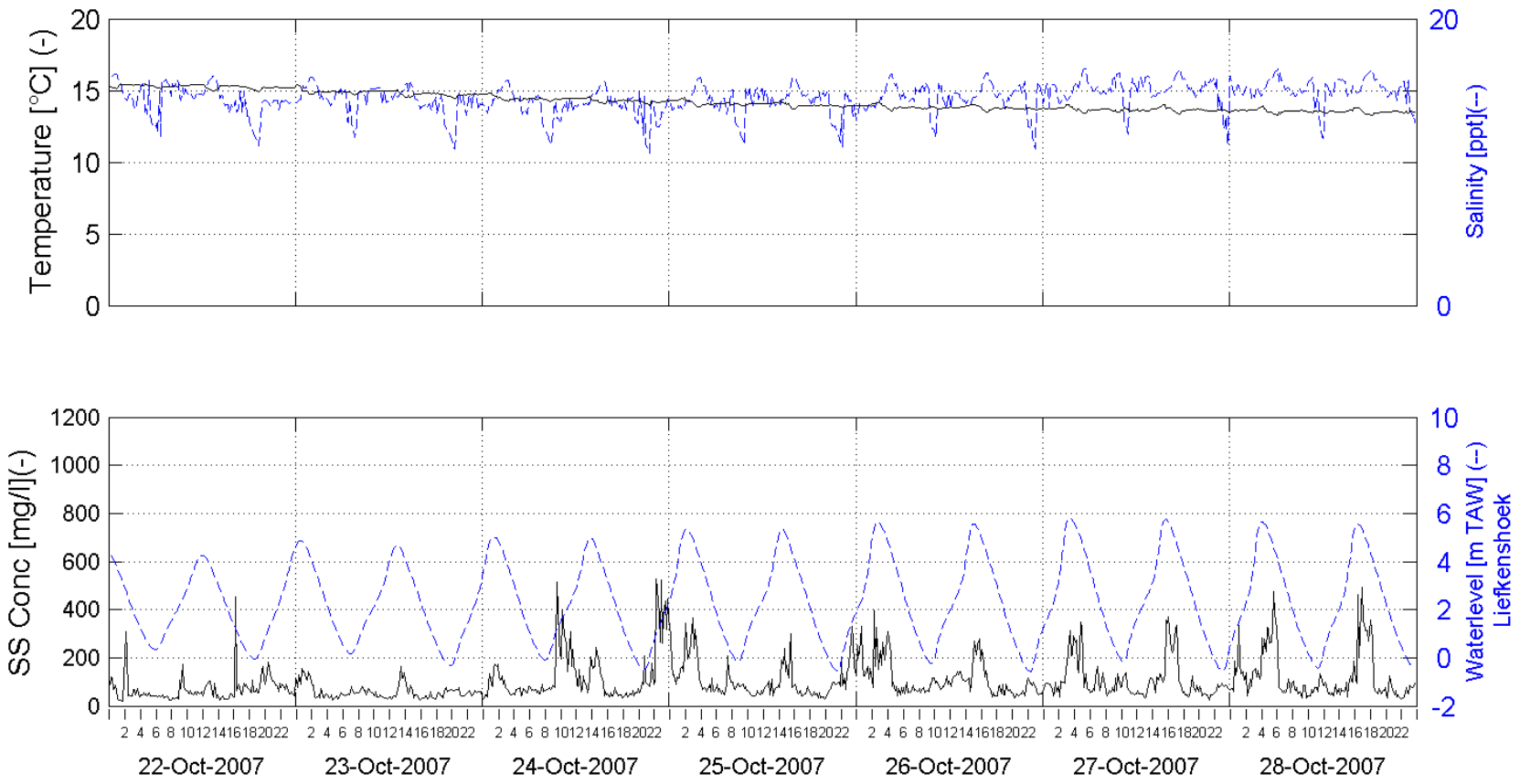
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 43 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

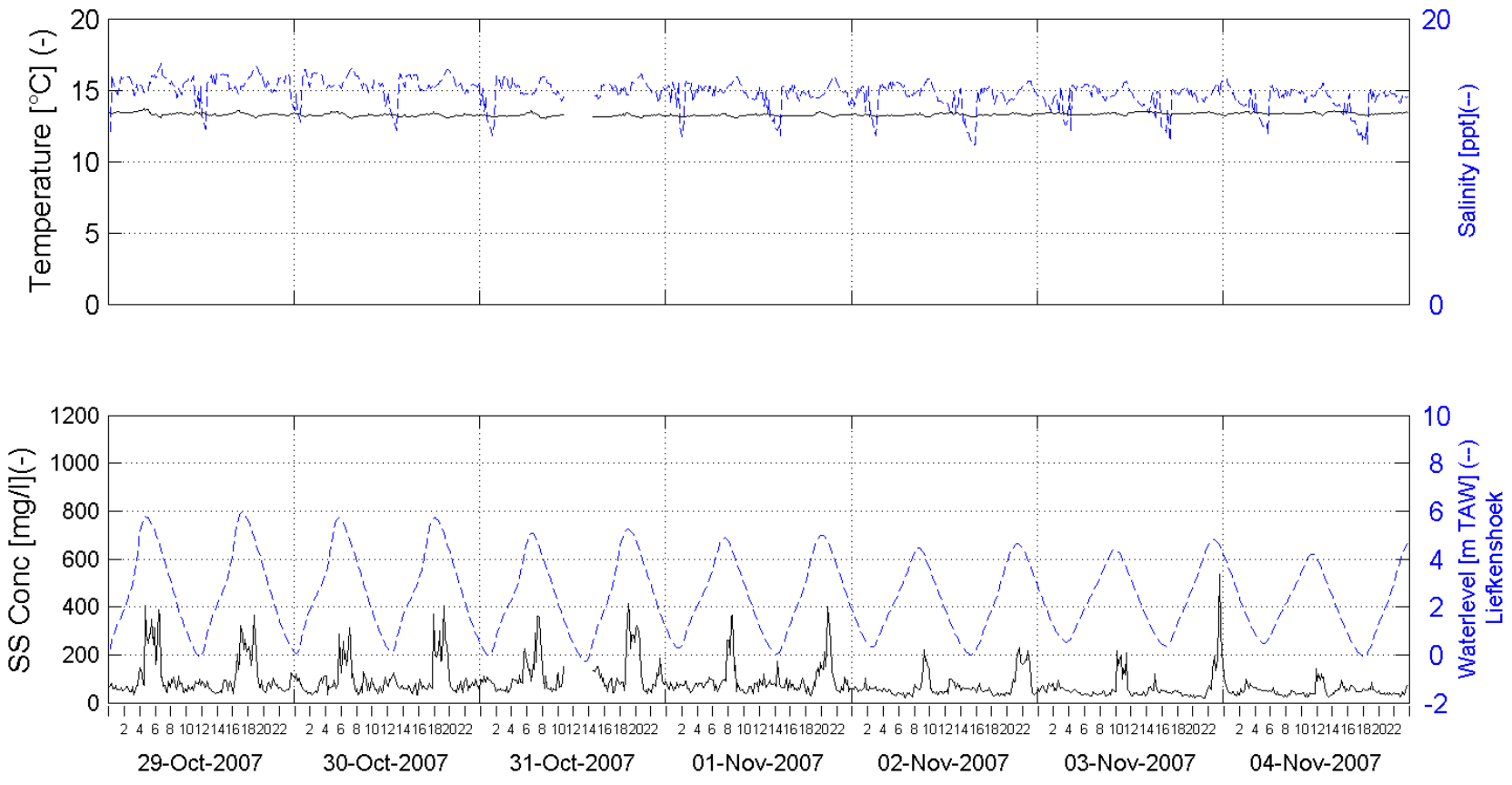
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 44 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

IMDC

In Association with:

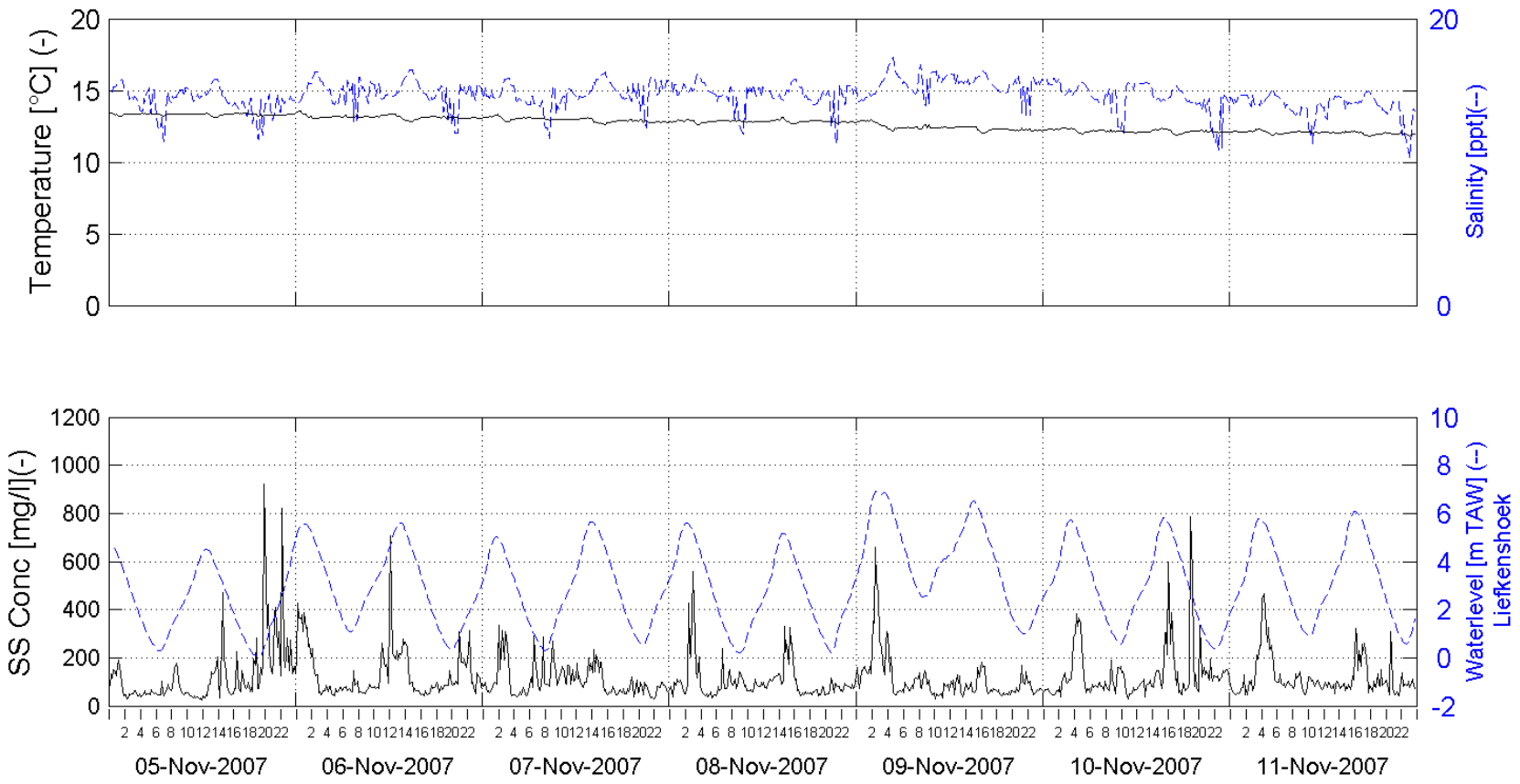
WL | delft hydraulics

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 45 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

IMDC

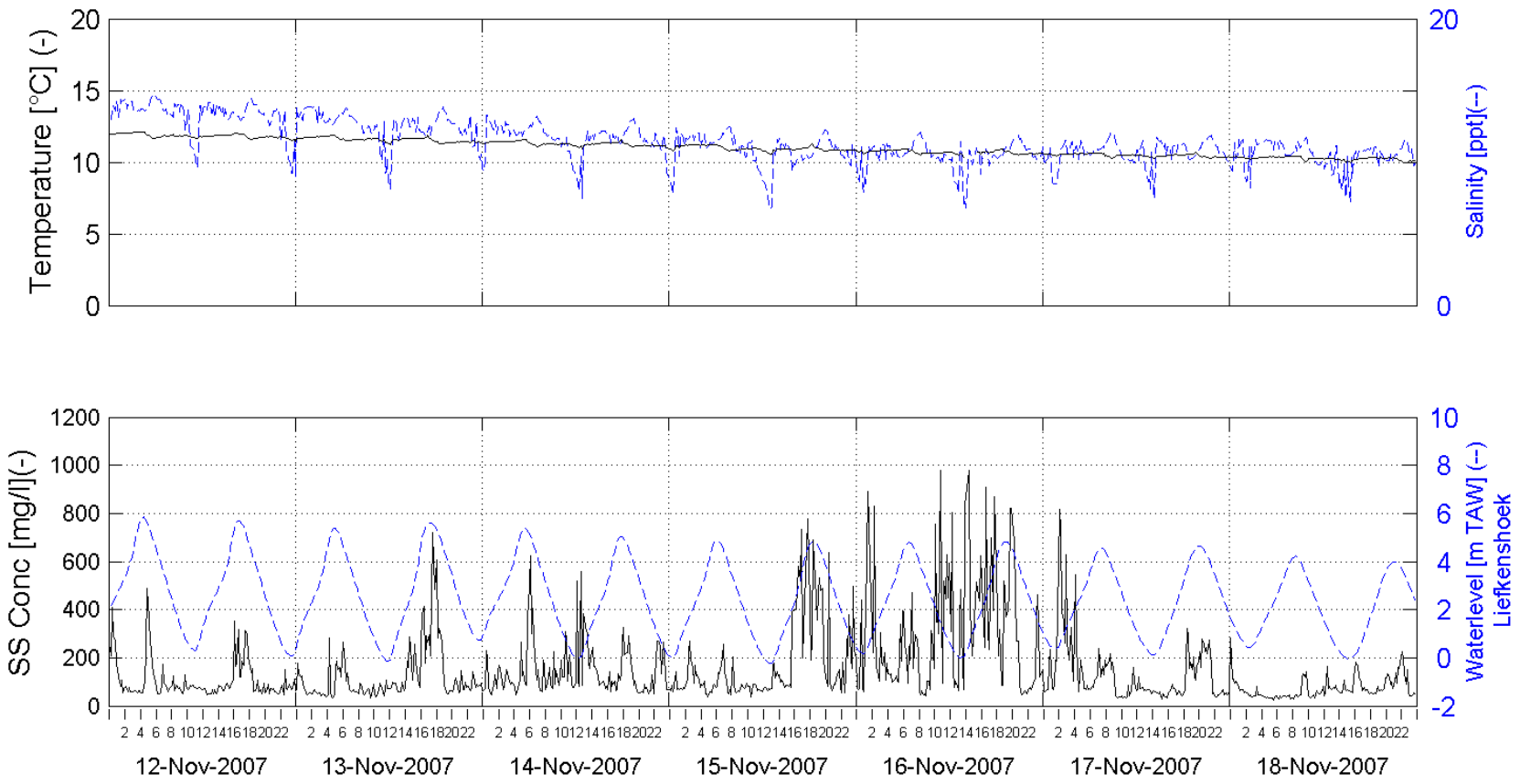
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 46 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

IMDC

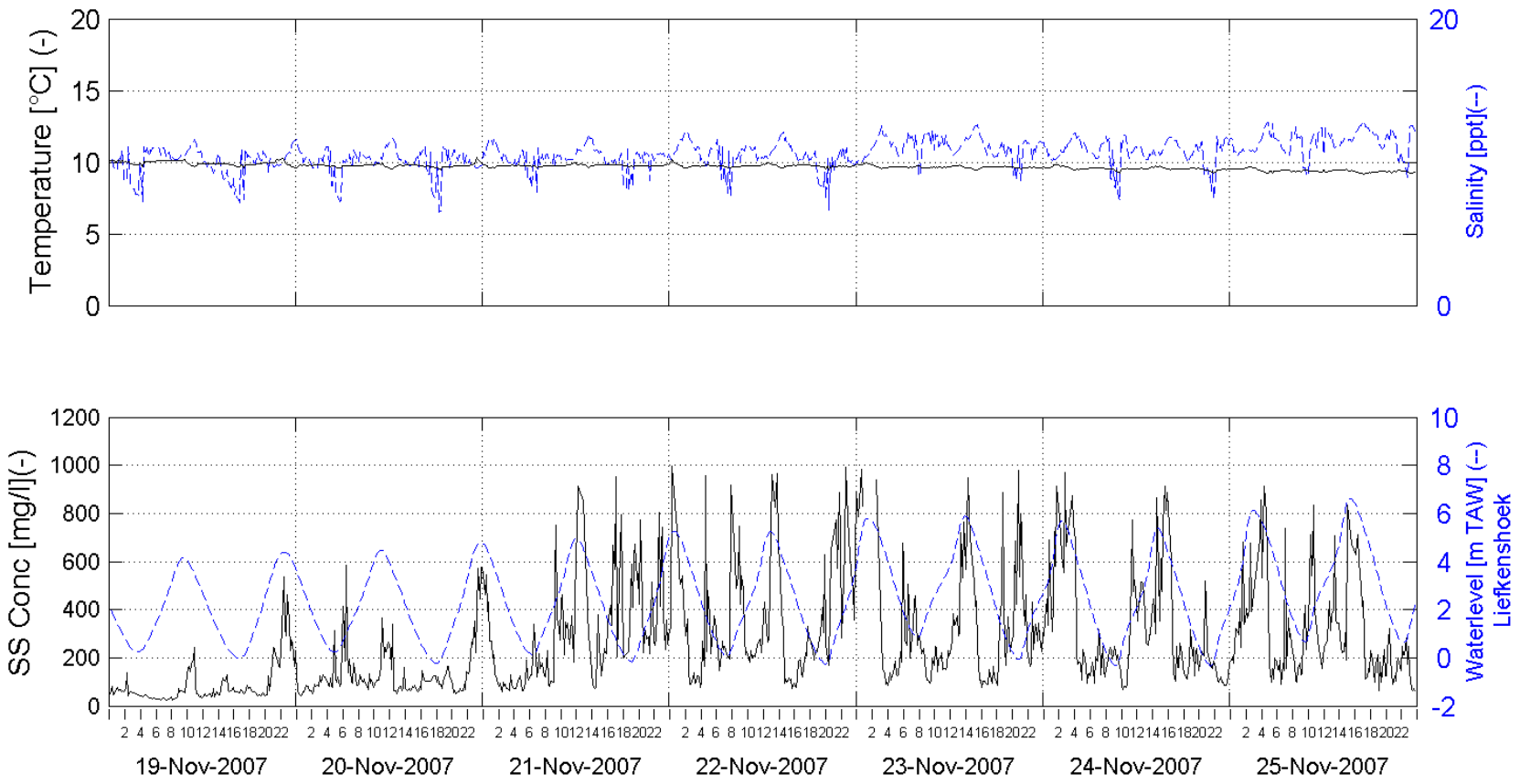
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 47 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

IMDC

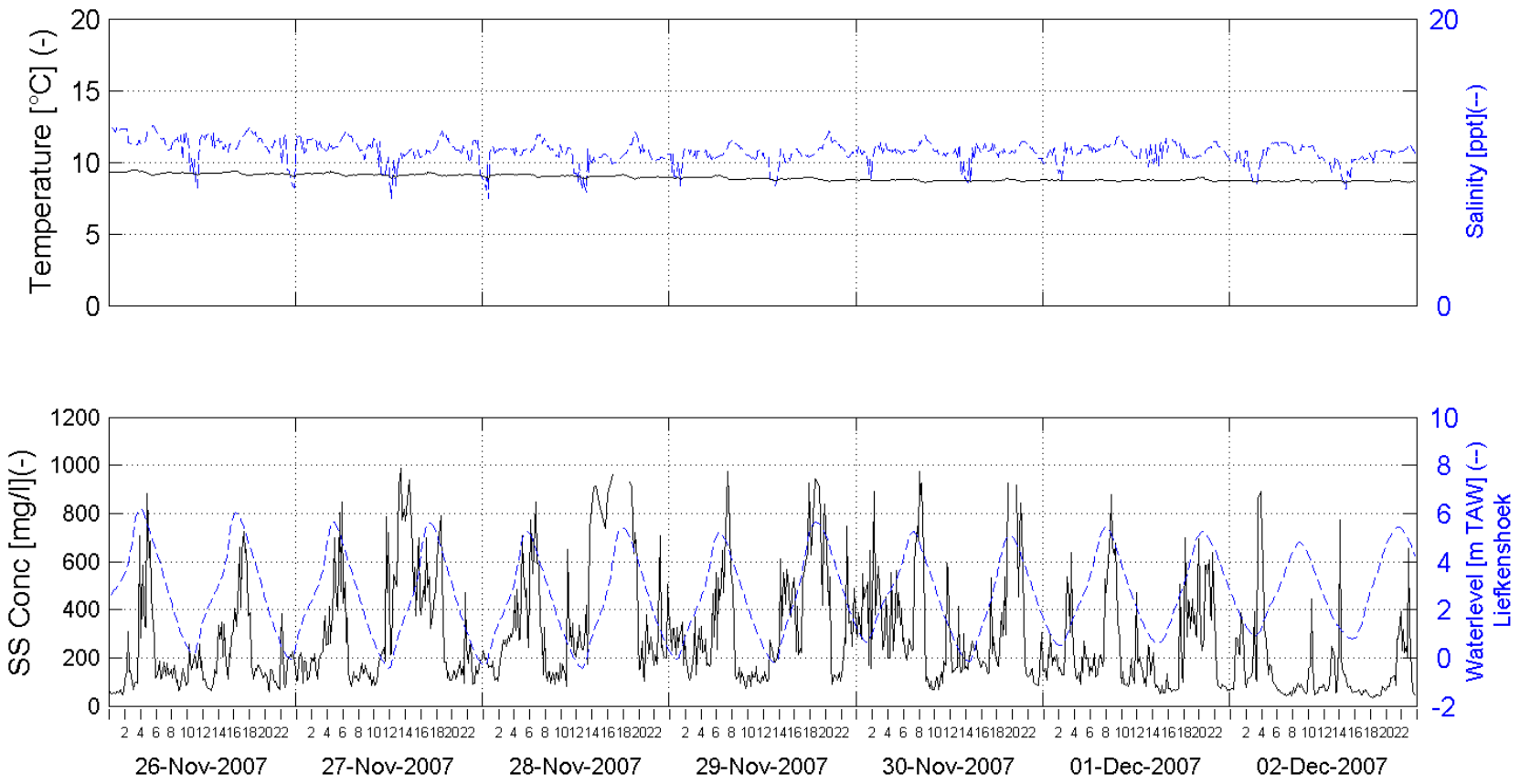
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 48 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

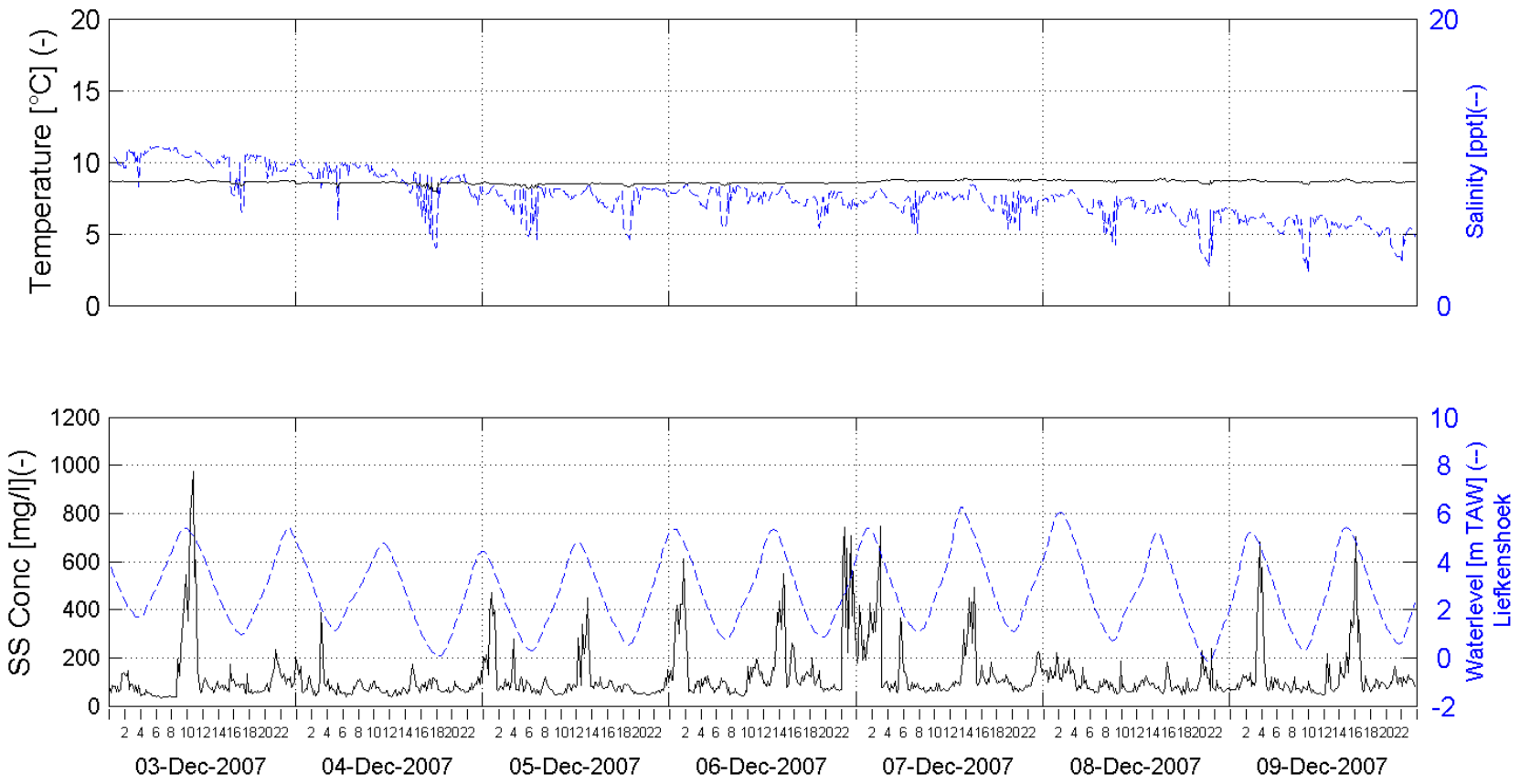
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 49 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

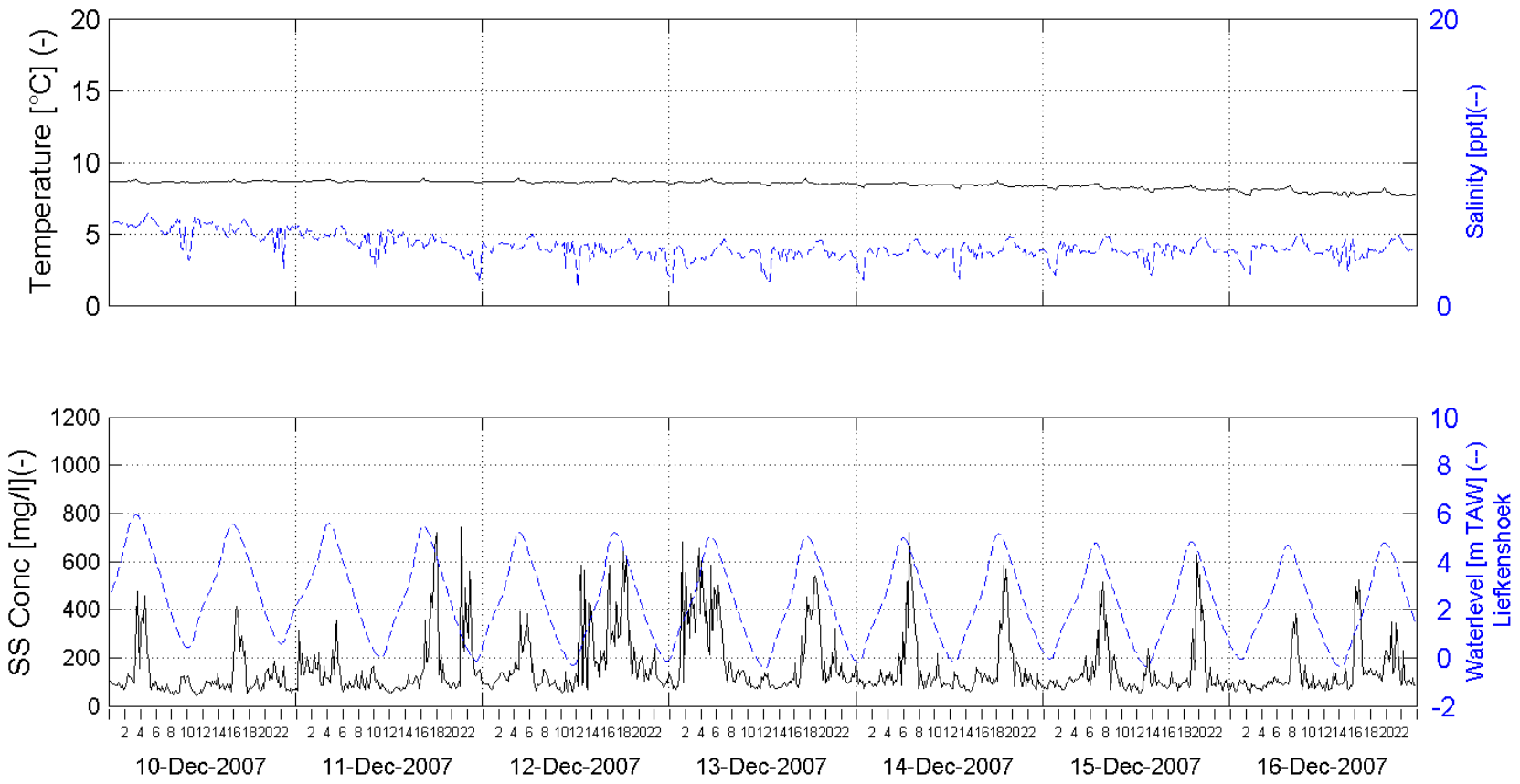
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 50 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

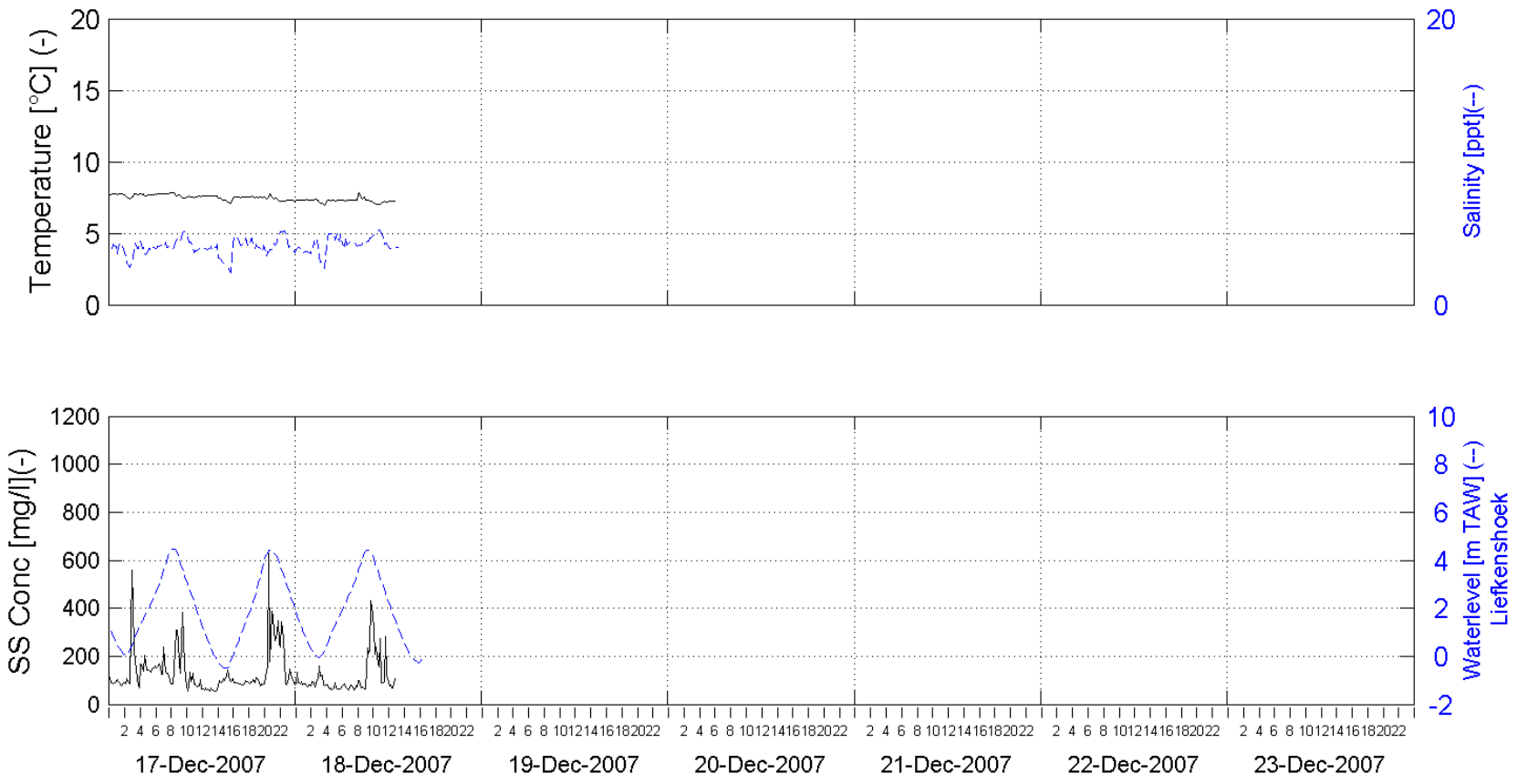
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 51 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

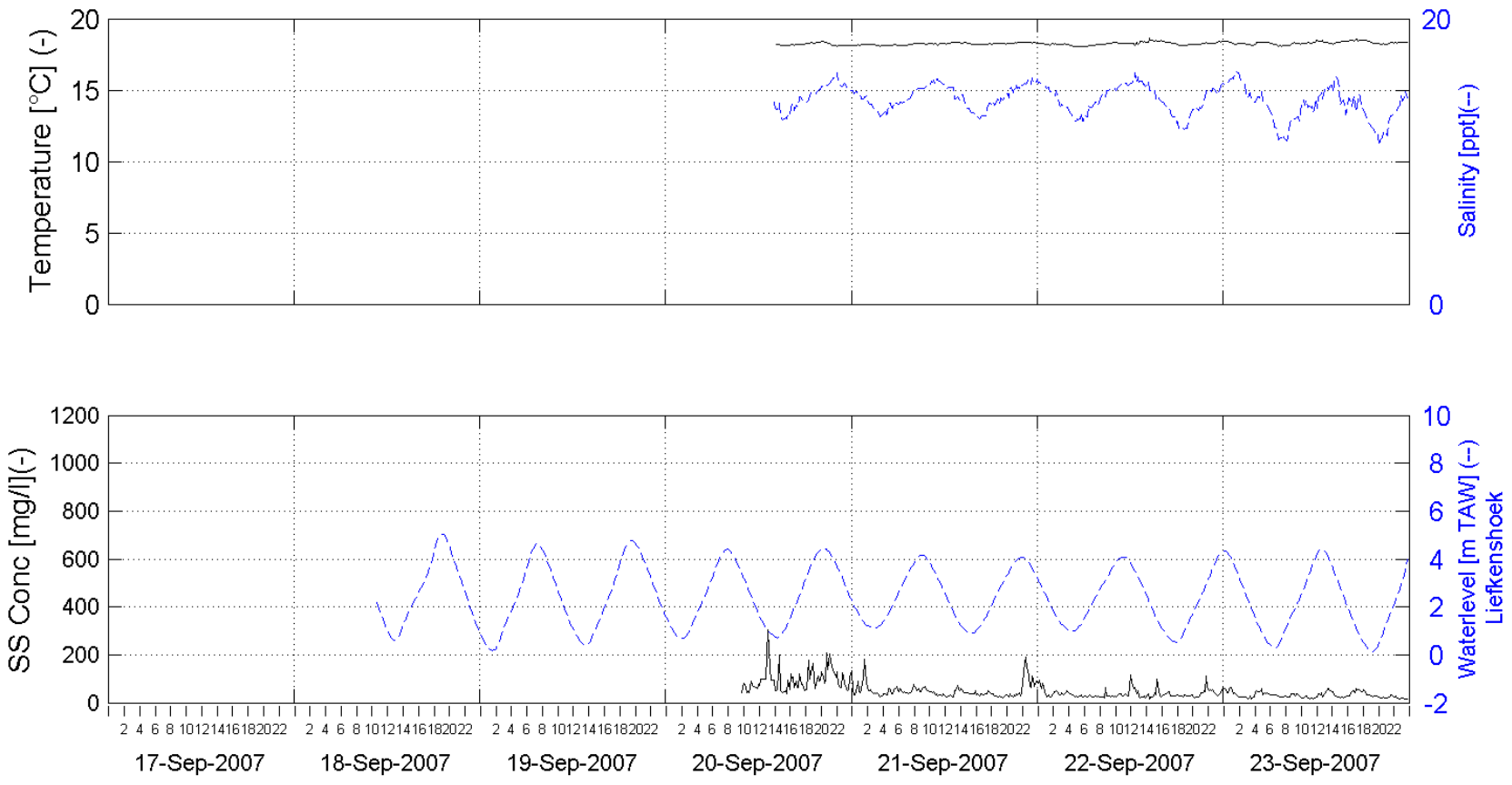
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 38 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

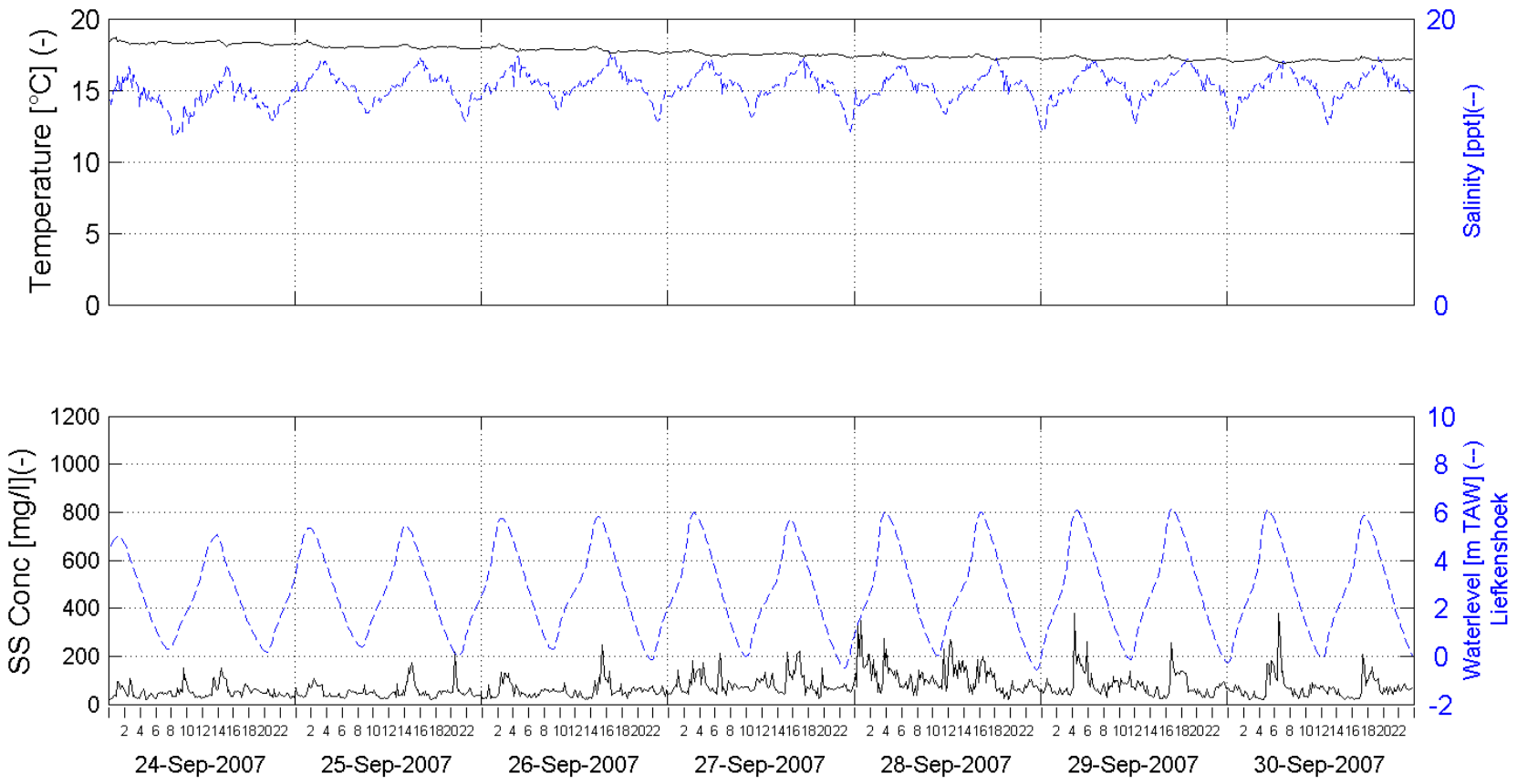
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 39 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

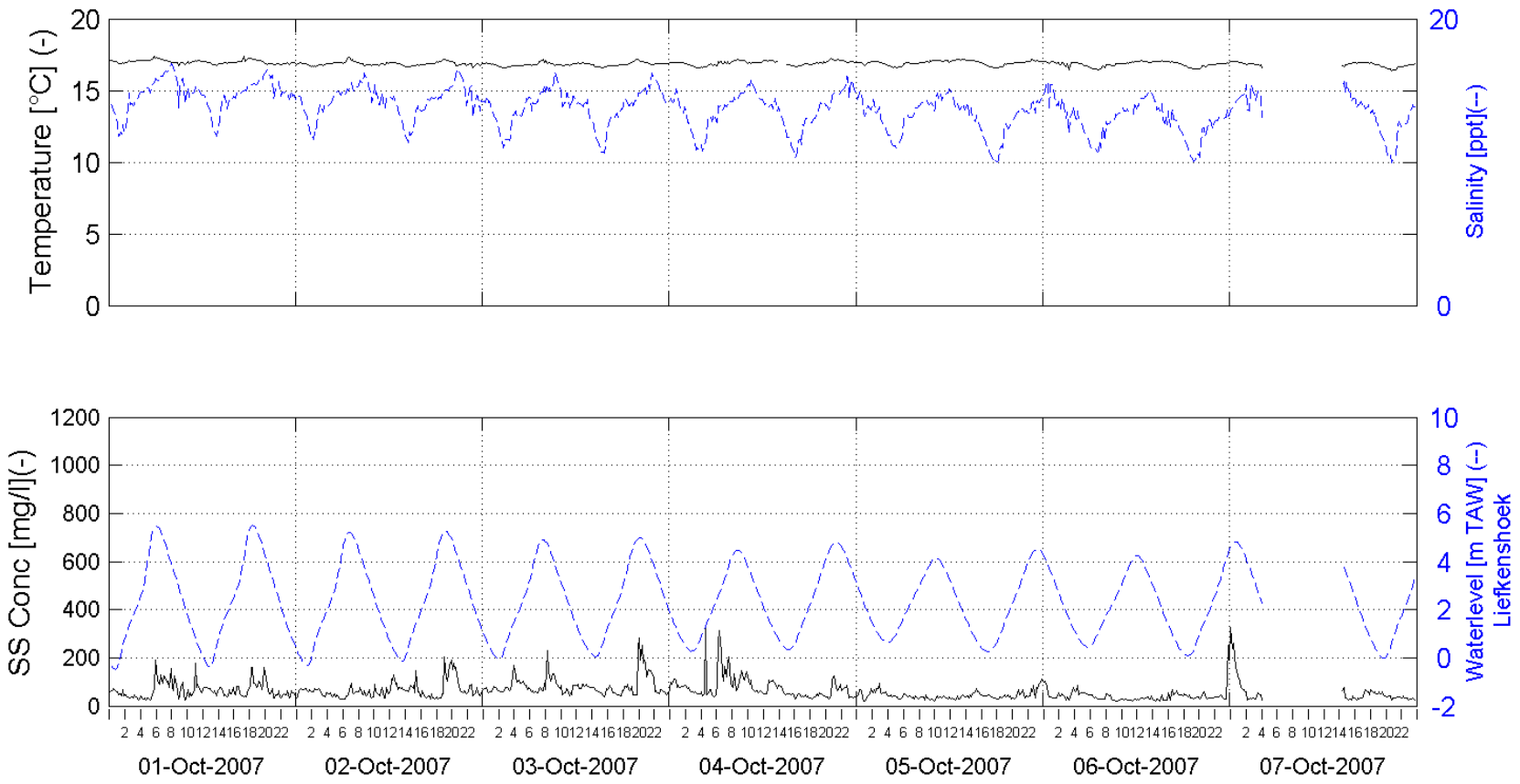
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 40 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

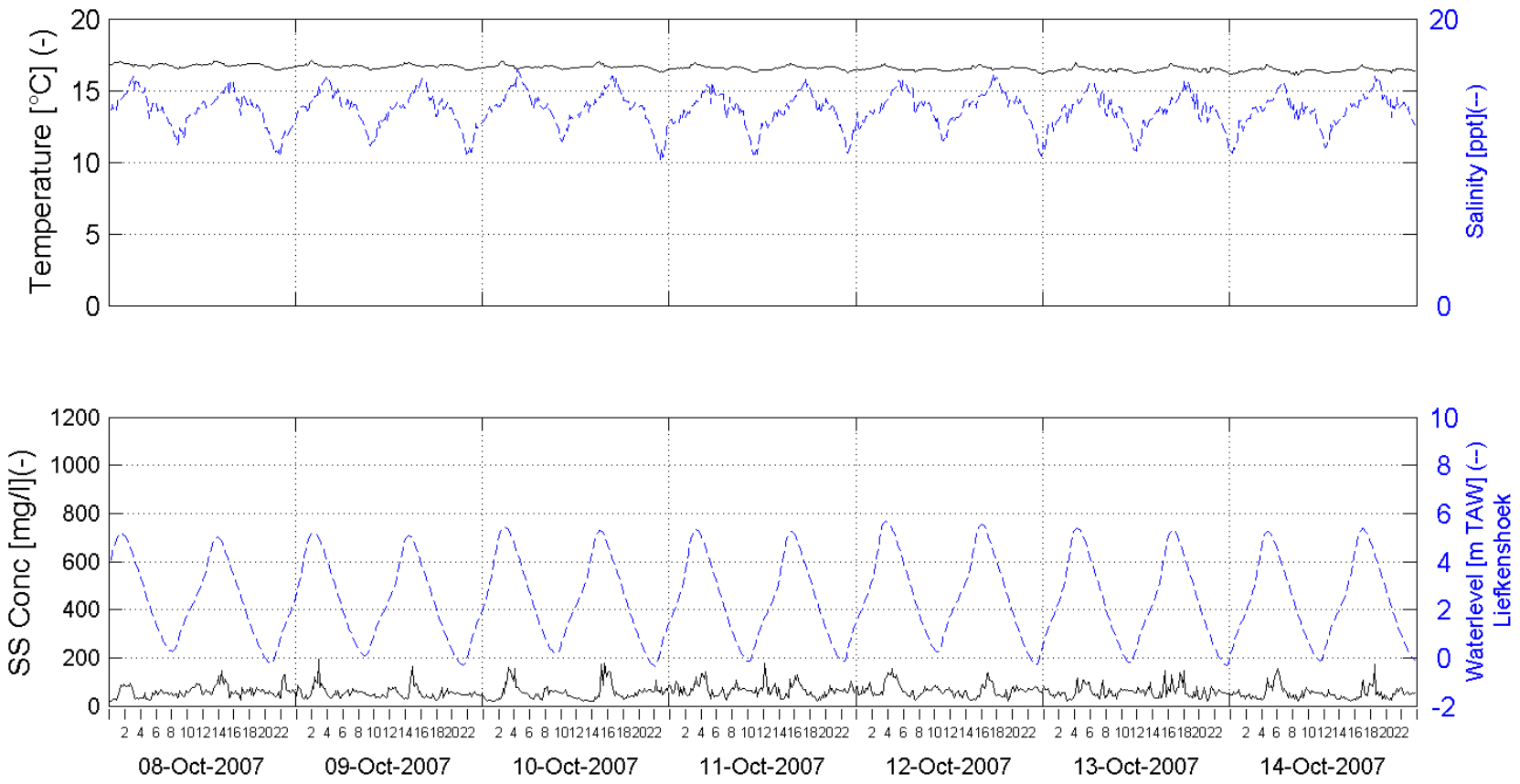
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 41 - 2007




Week series of Salinity, Temperature,
SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

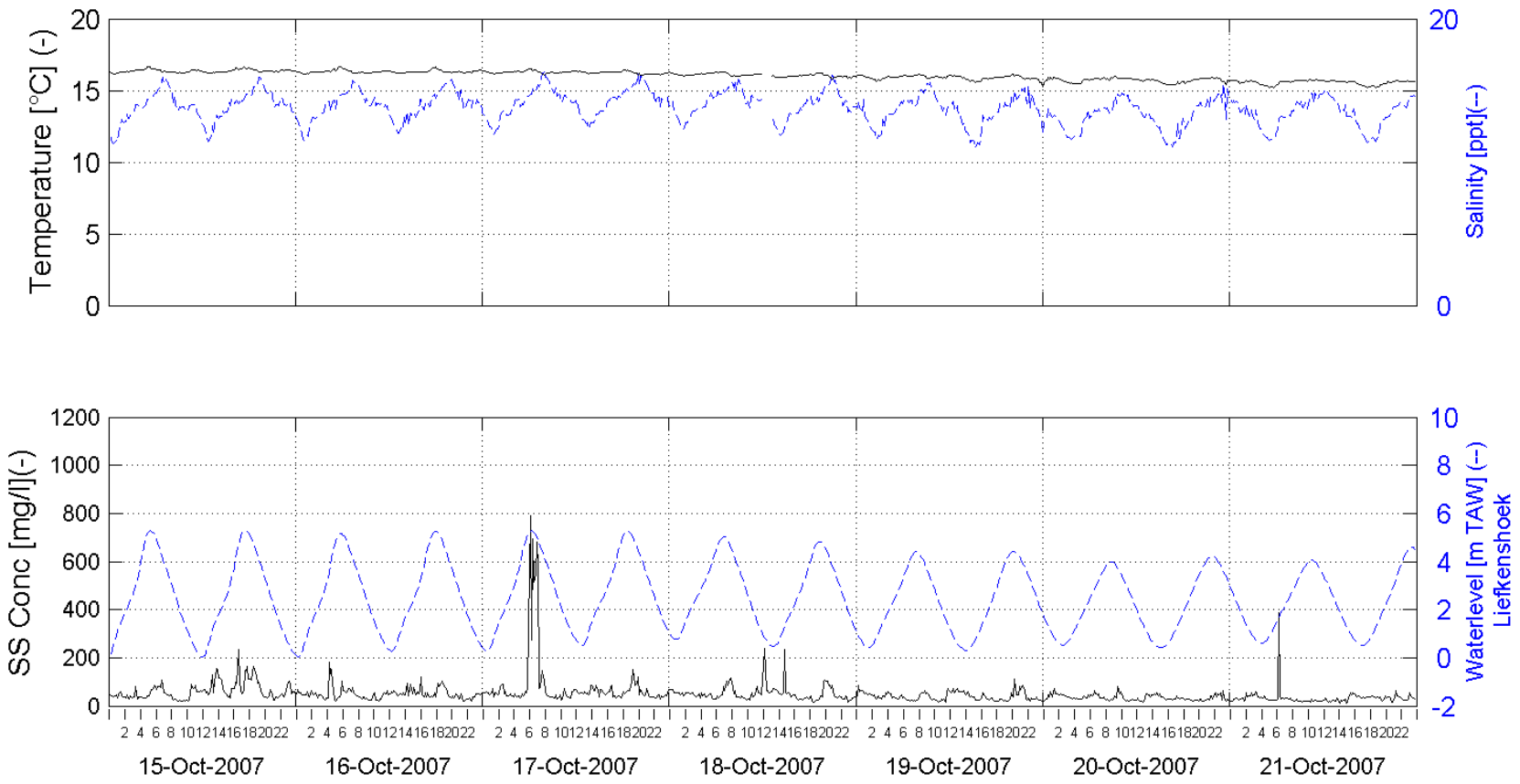
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 42 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

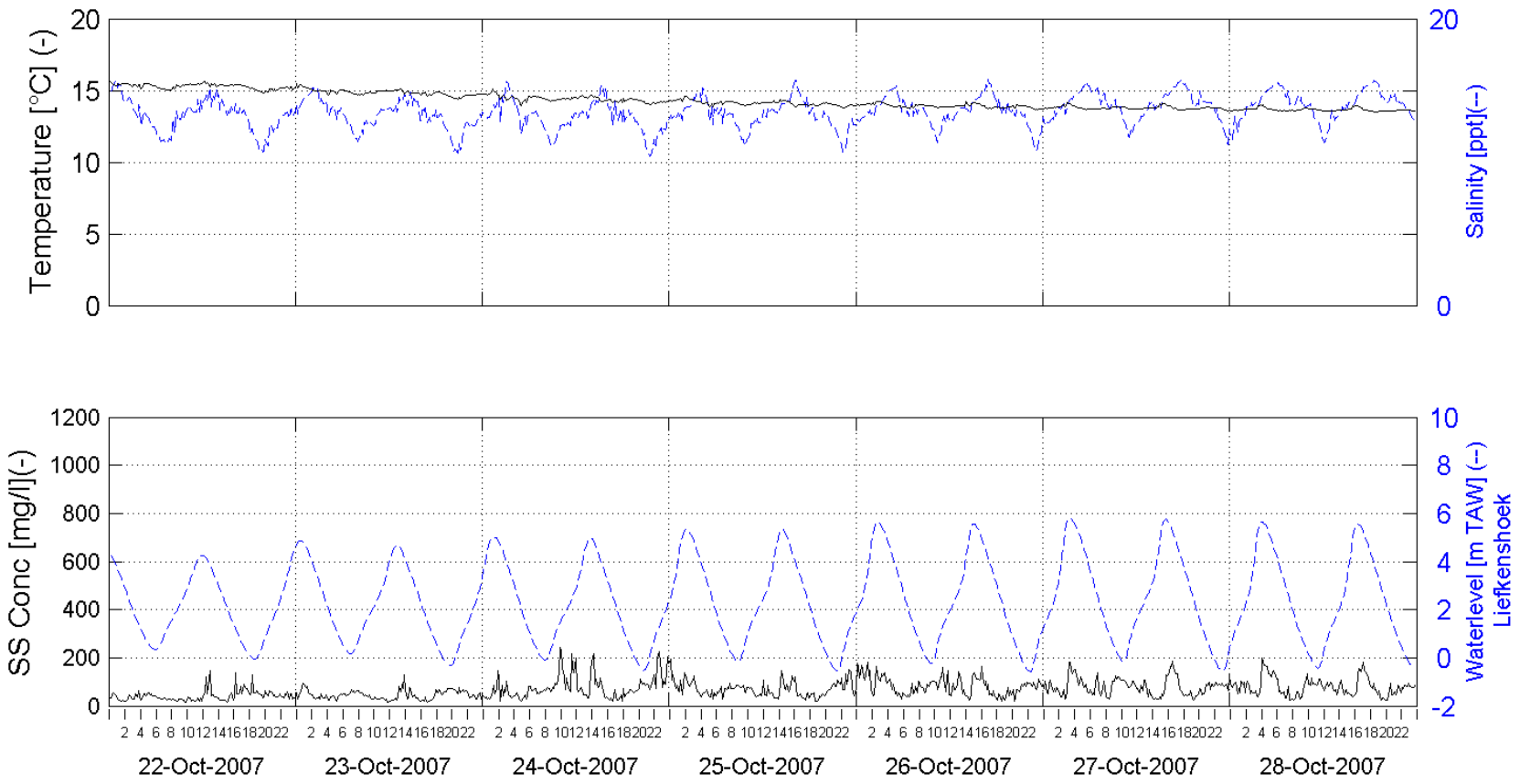
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 43 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

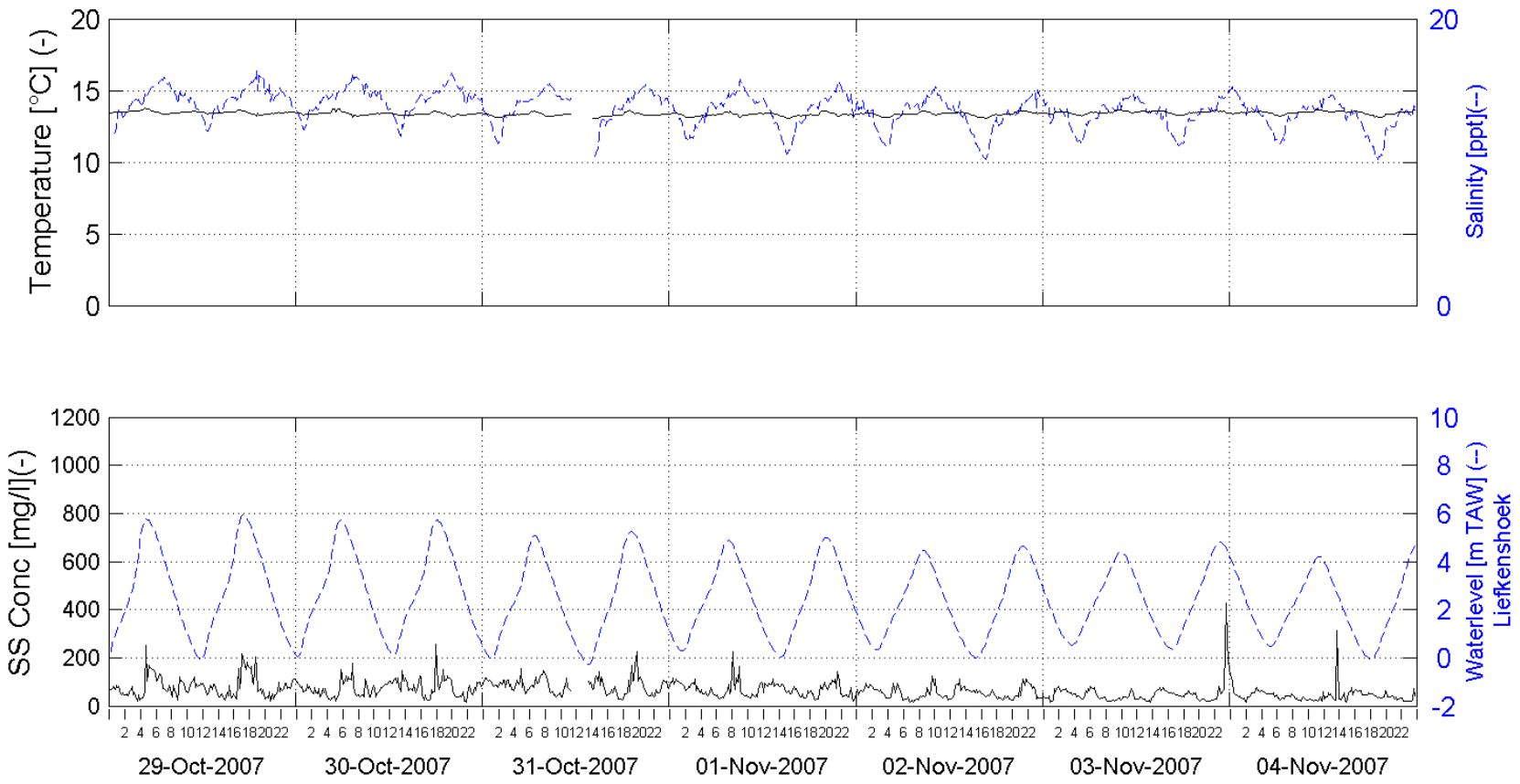
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 44 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

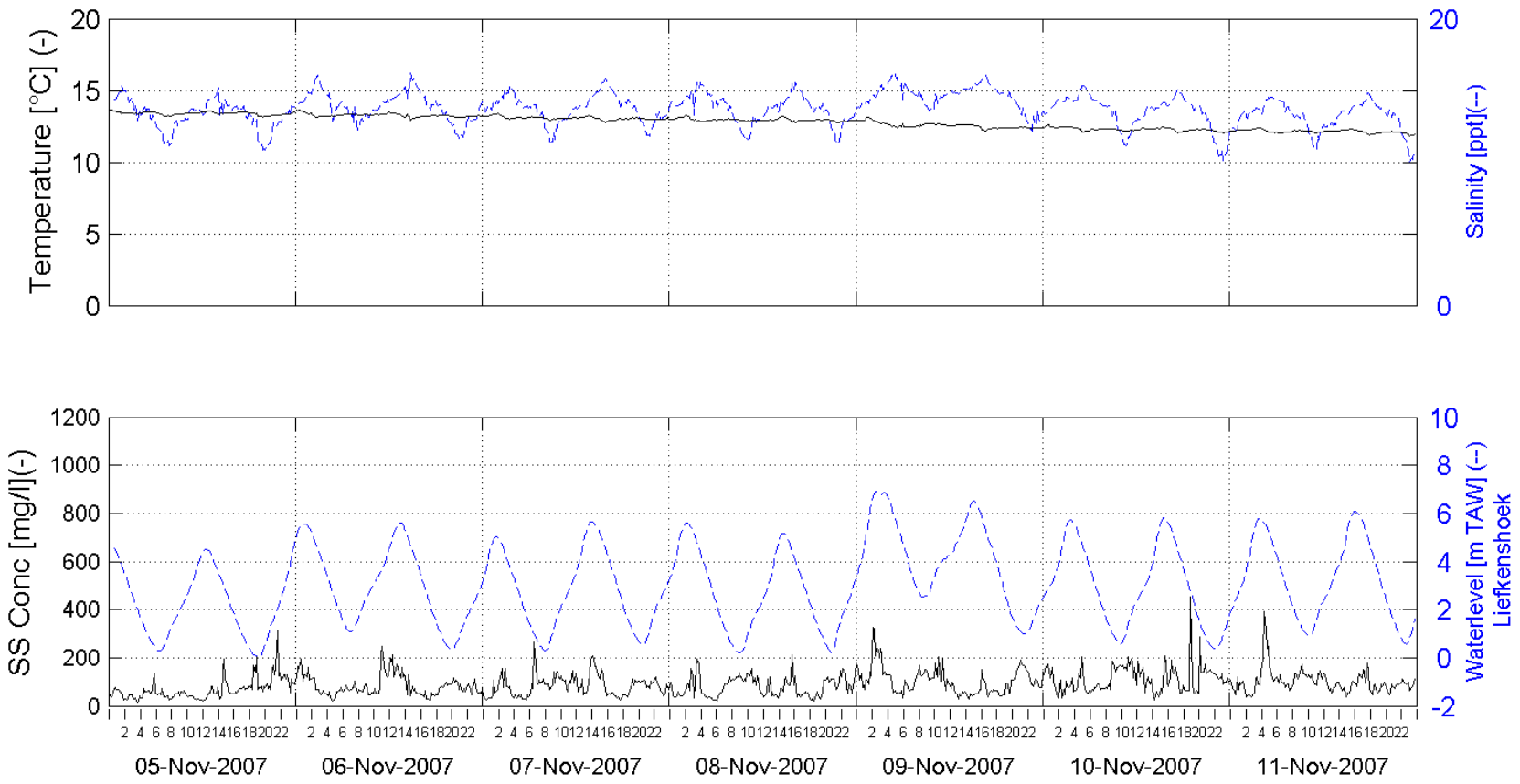
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 45 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

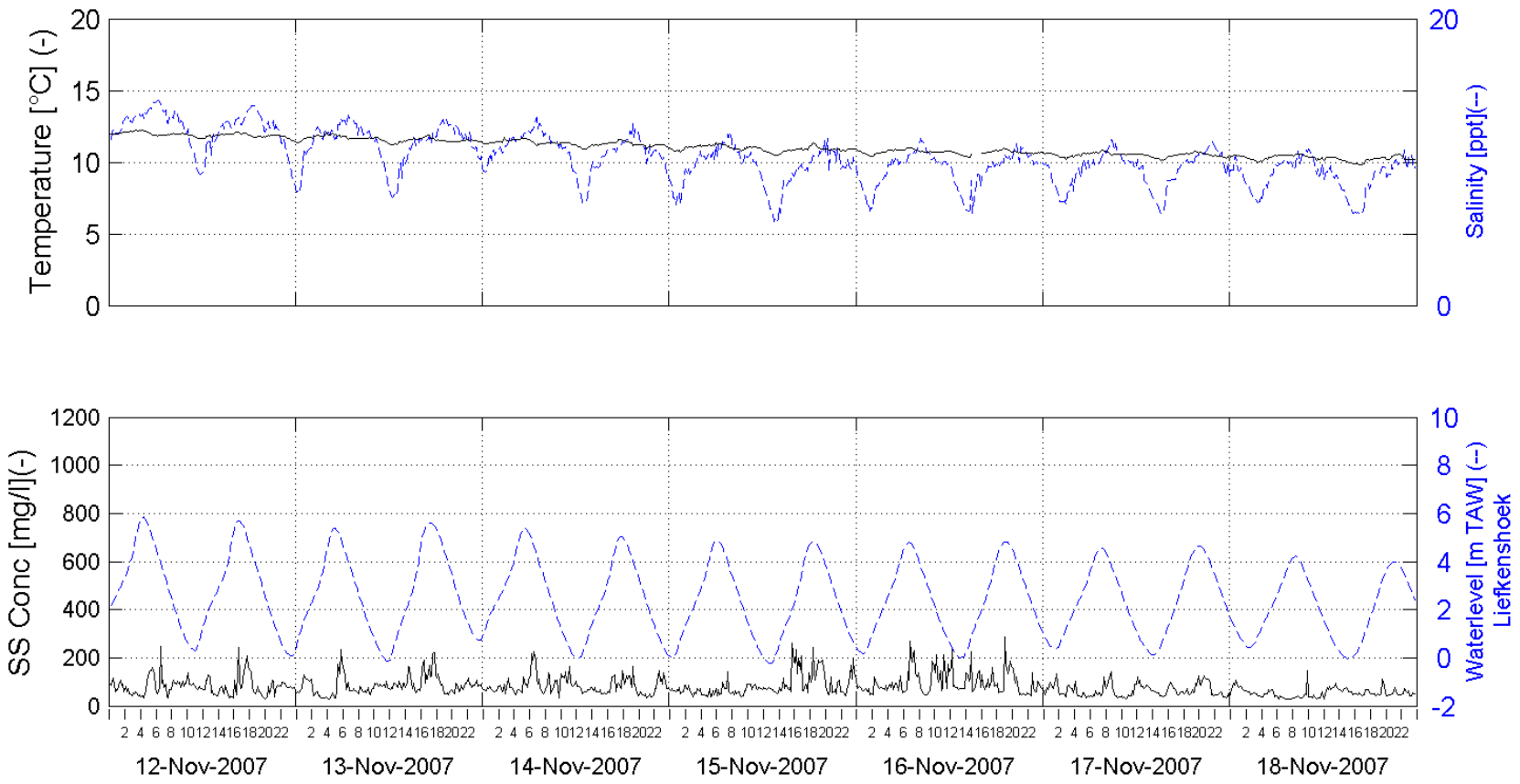
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 46 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

IMDC

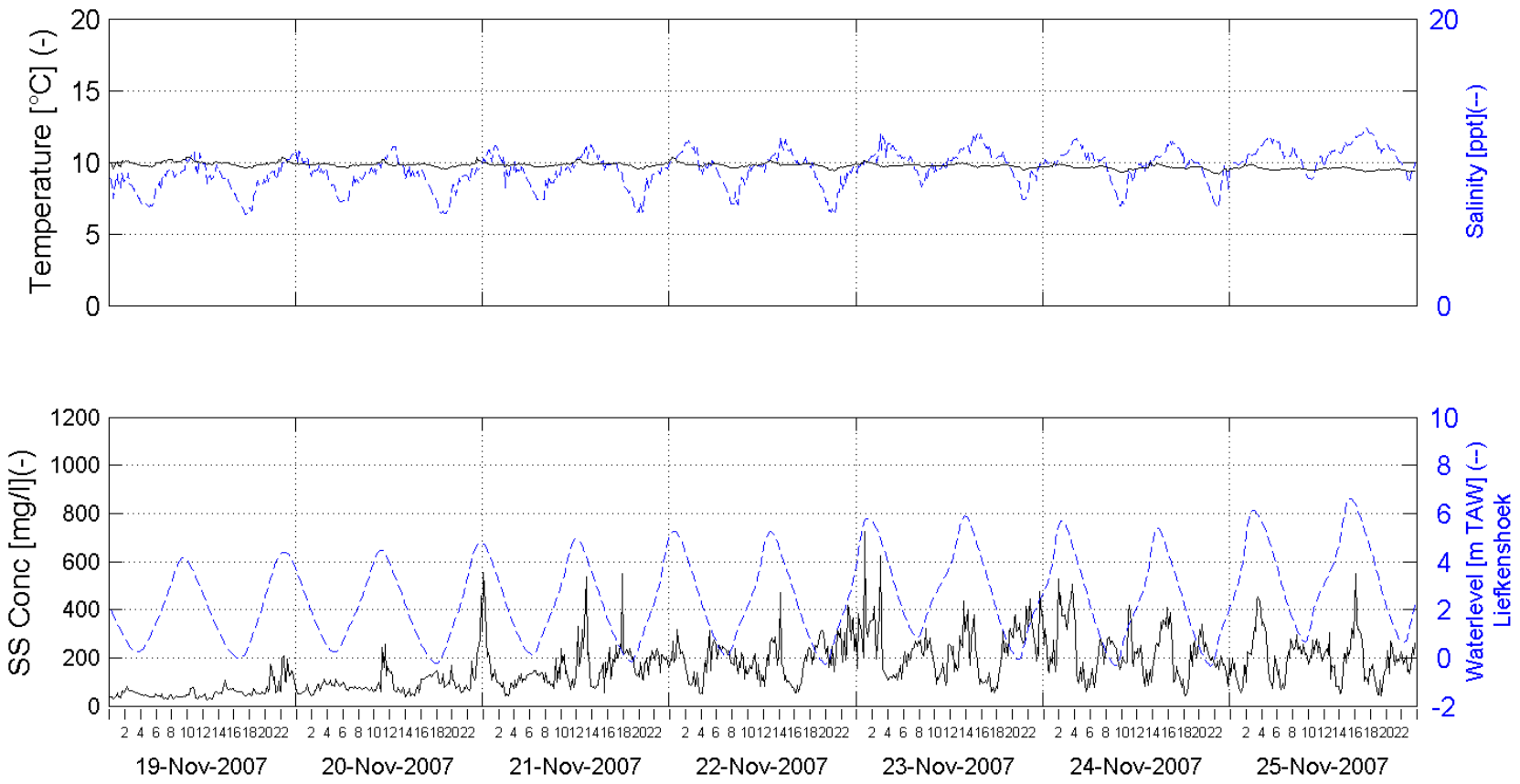
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 47 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

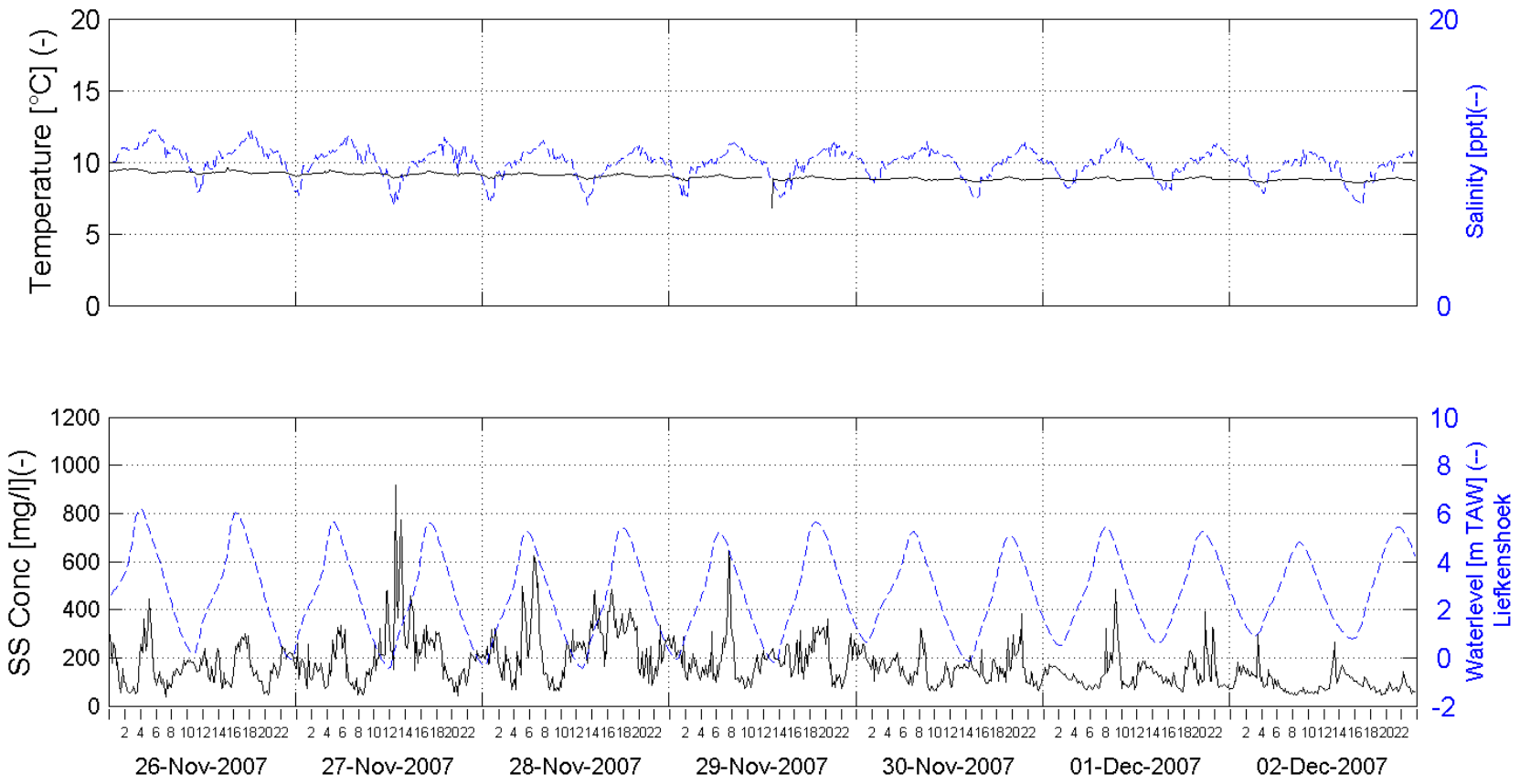
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 48 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

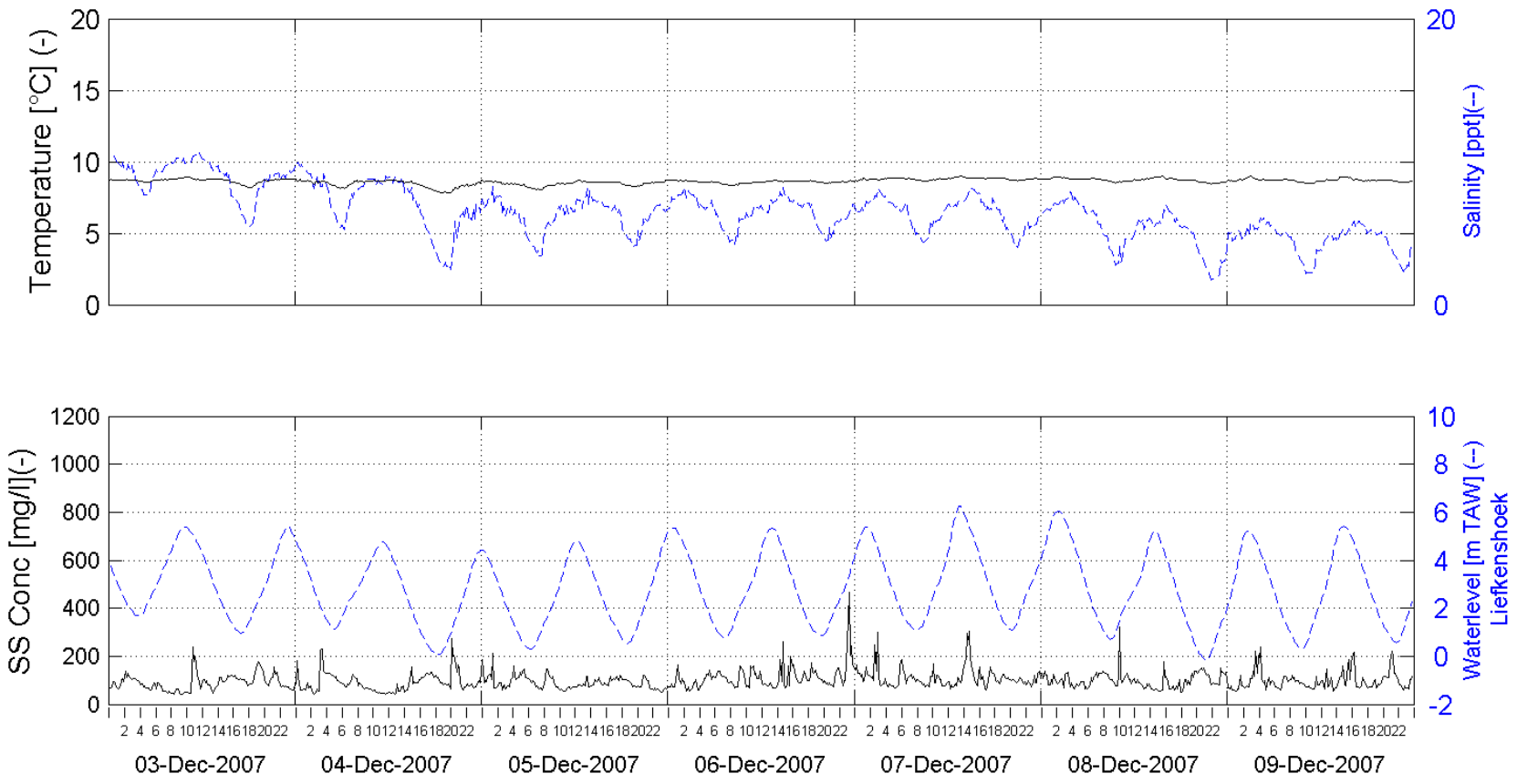
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 49 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

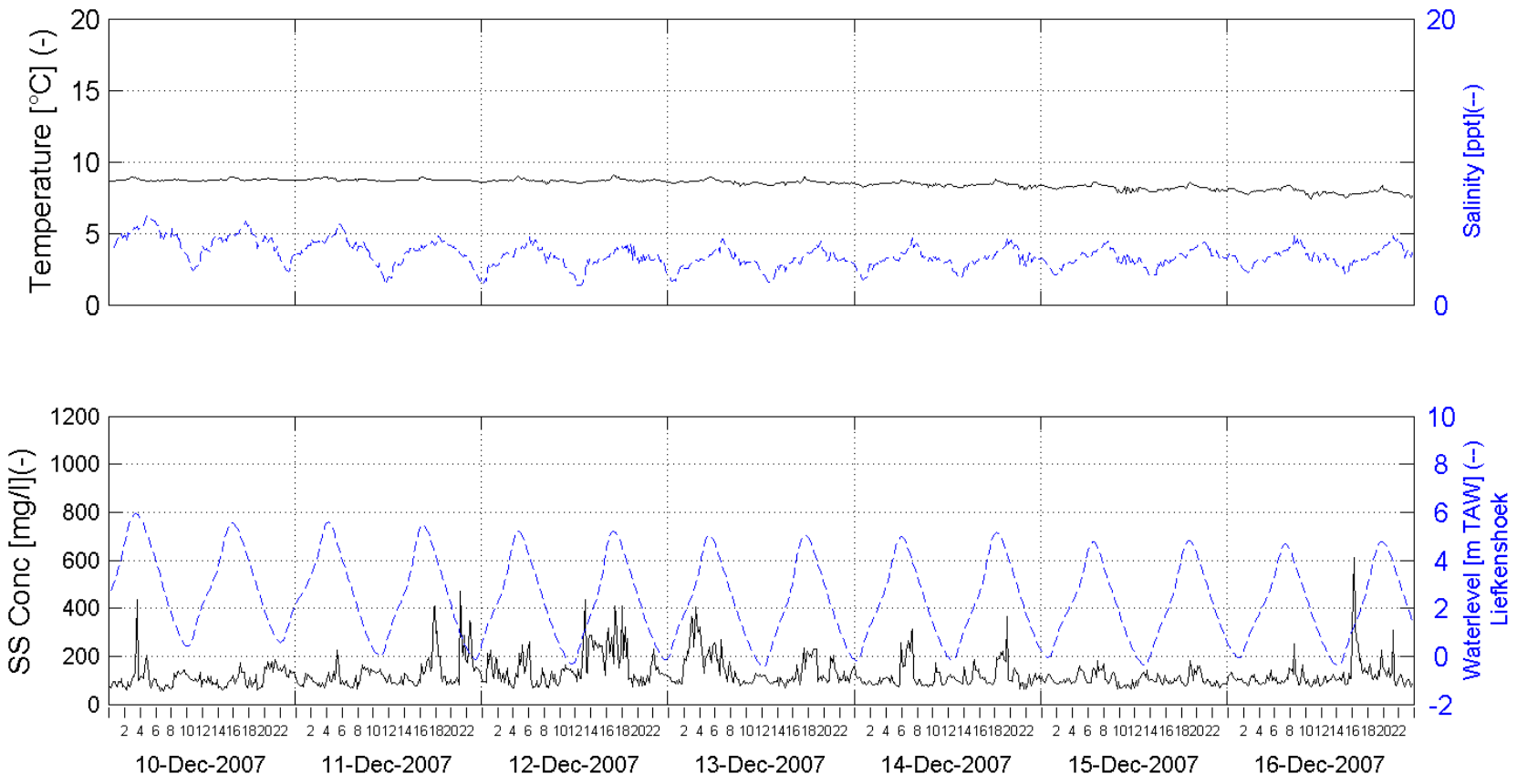
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 50 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

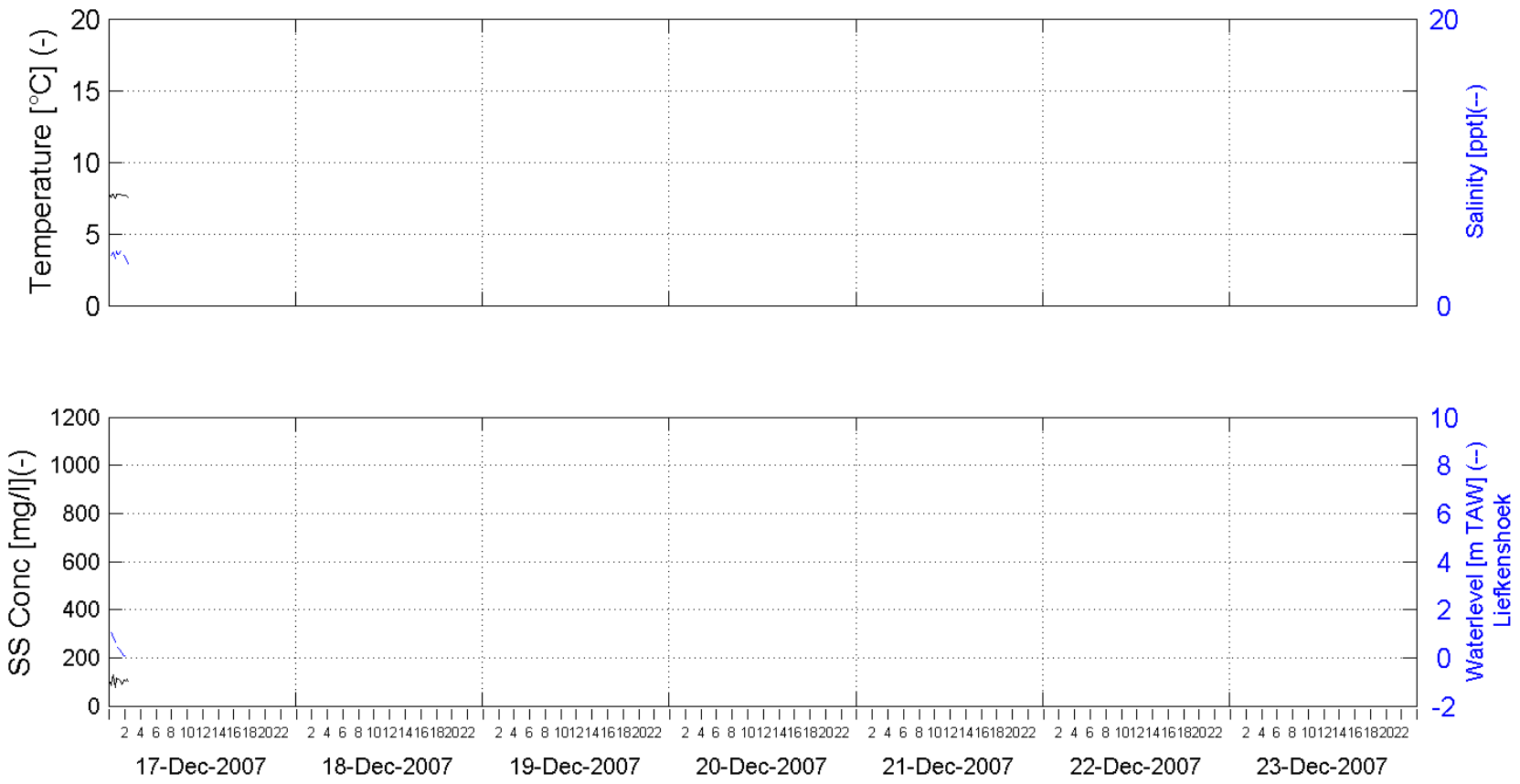
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 51 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE TOP 14.5m above bottom (-2.5m TAW)

Processed by:

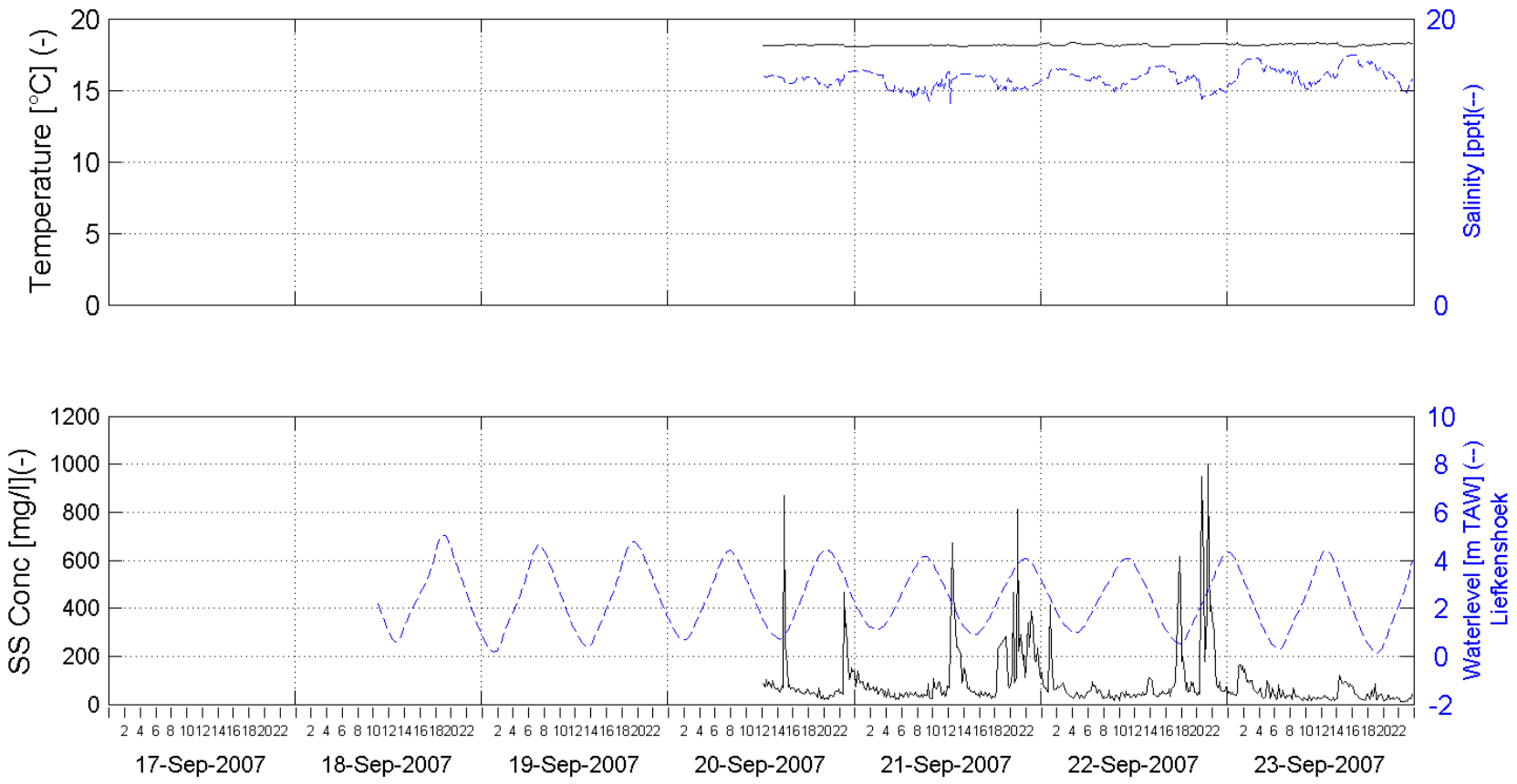
In Association with:

I/RA/11283/07.093/MSA

## B.2 P&O1 (S-BACK)

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 38 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

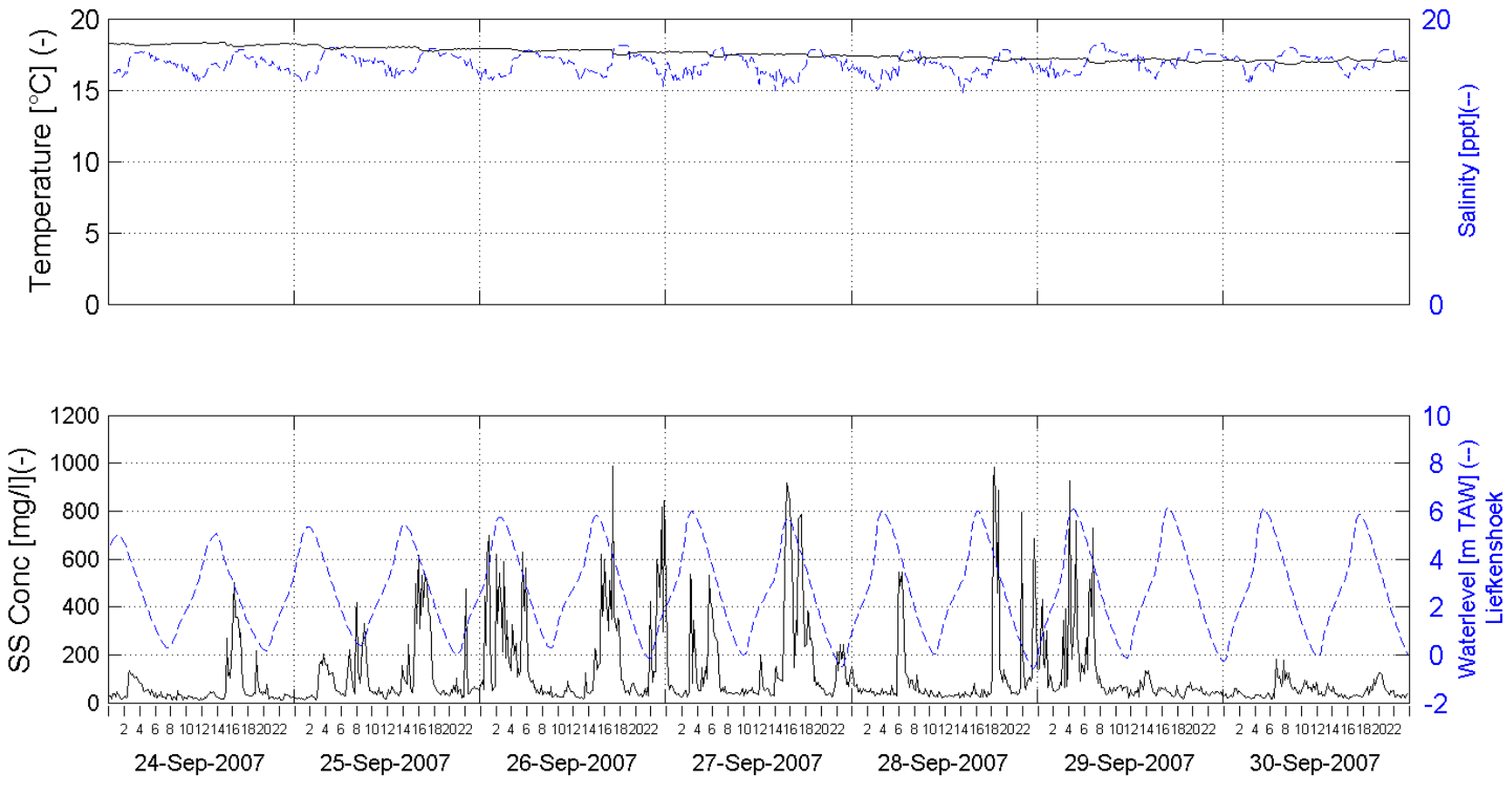
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 39 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

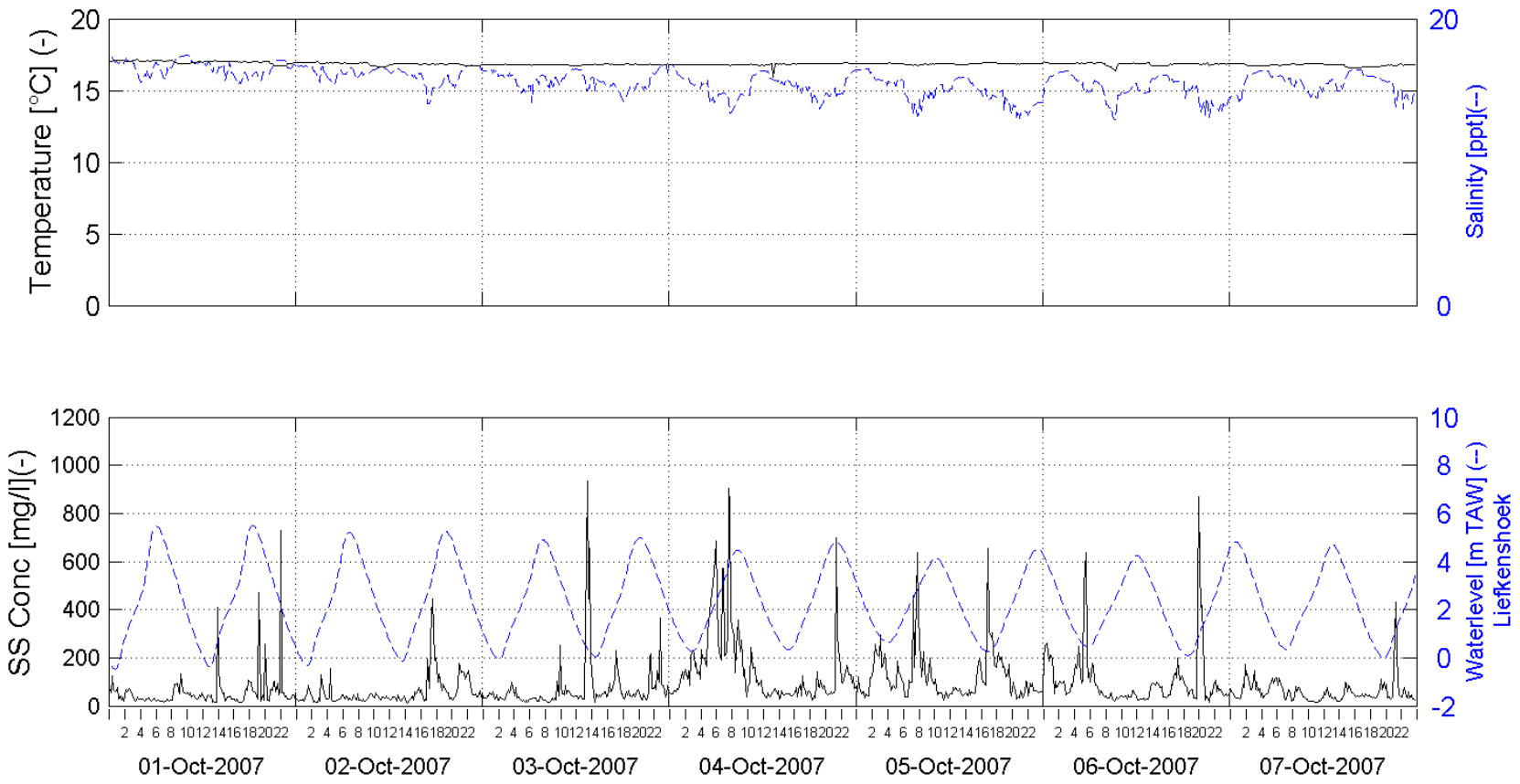
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 40 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

IMDC

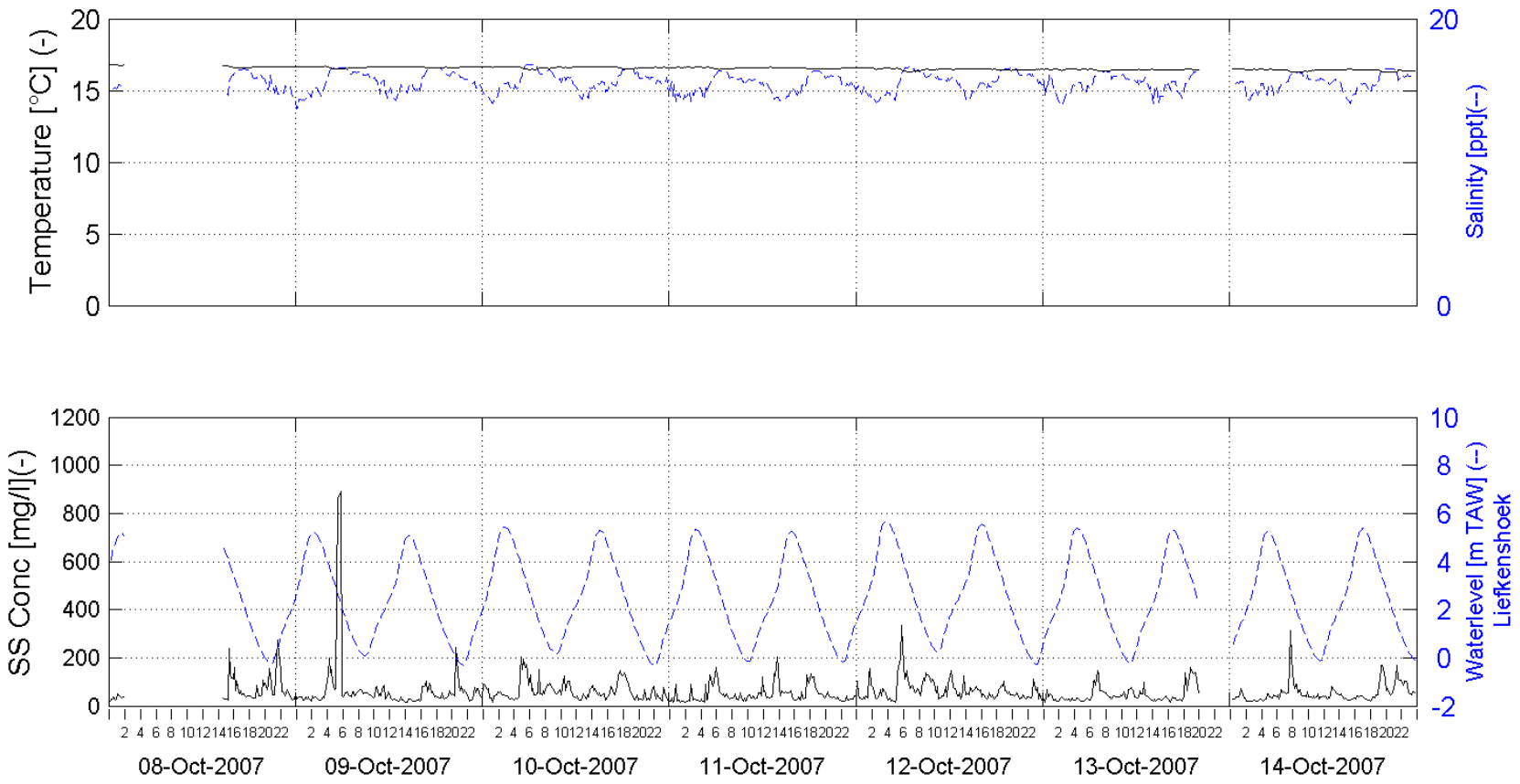
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 41 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

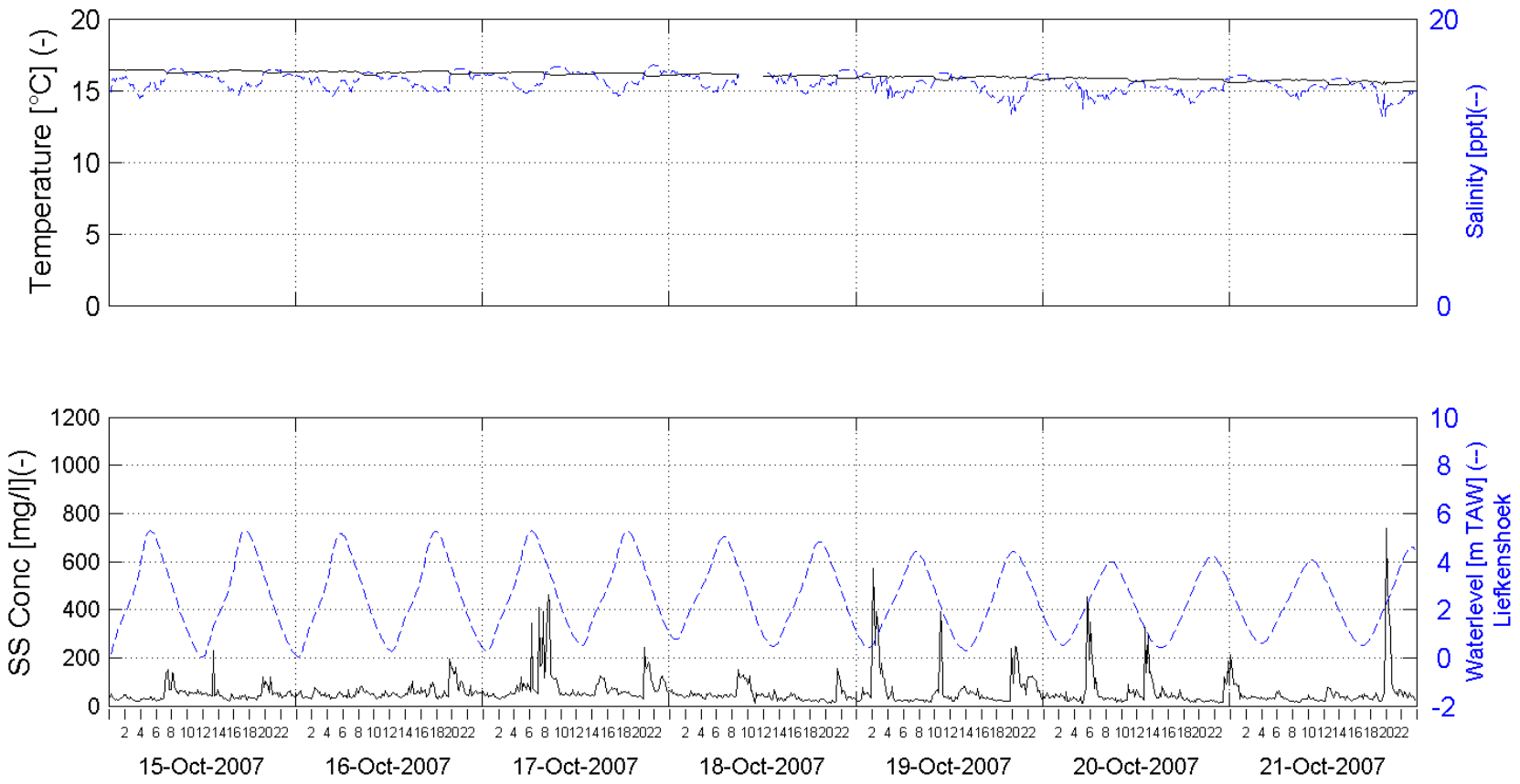
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 42 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

IMDC

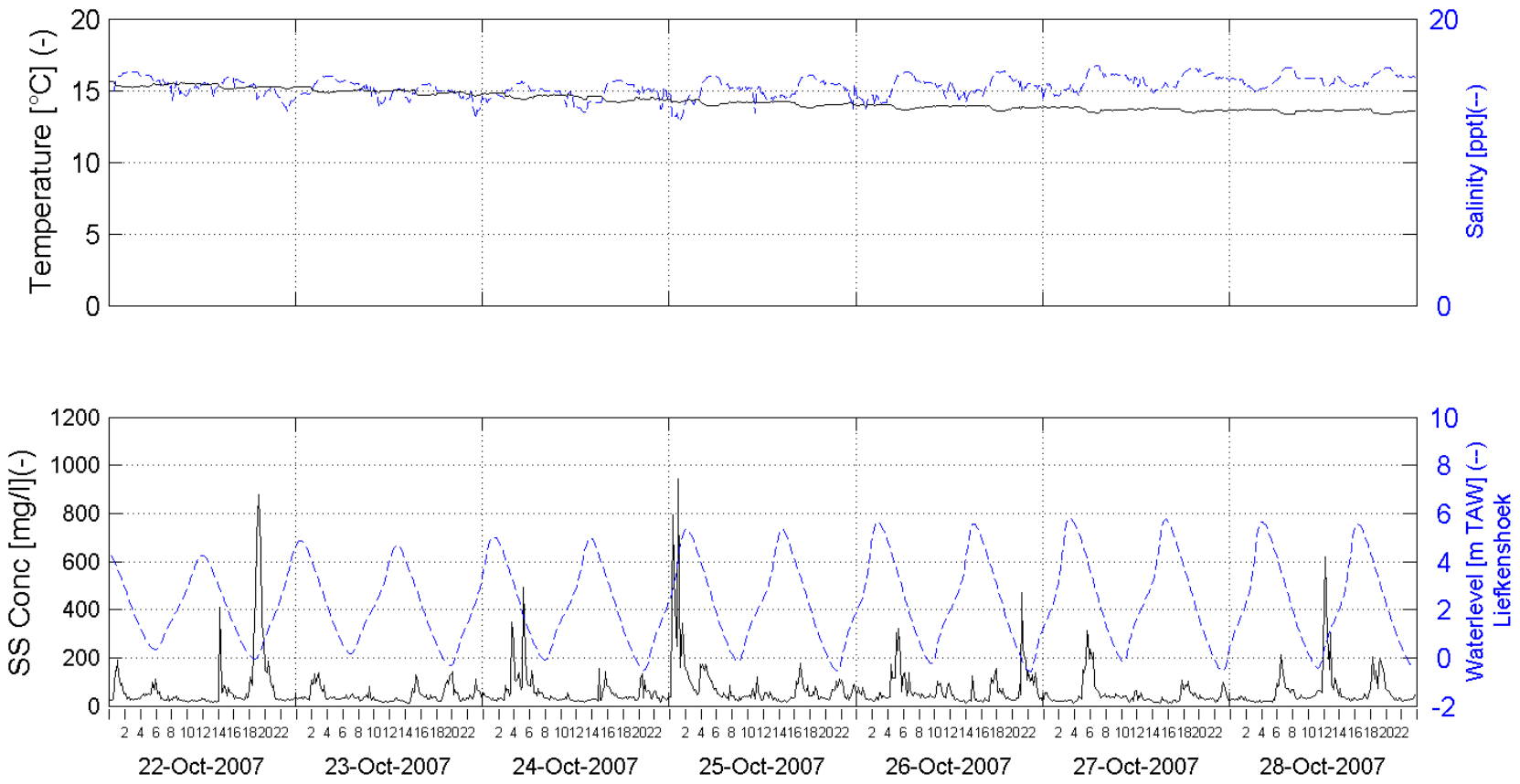
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 43 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

IMDC

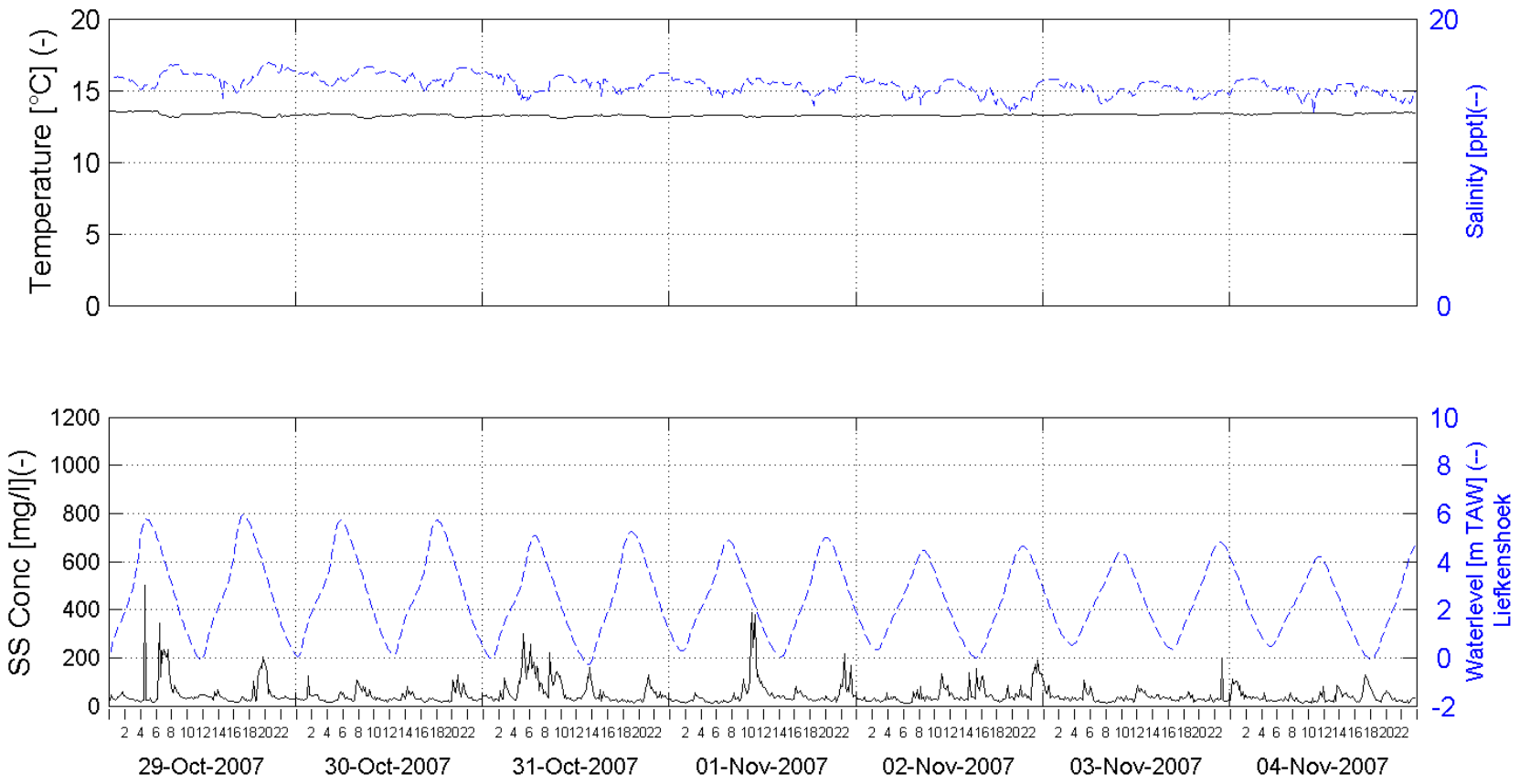
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 44 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

IMDC

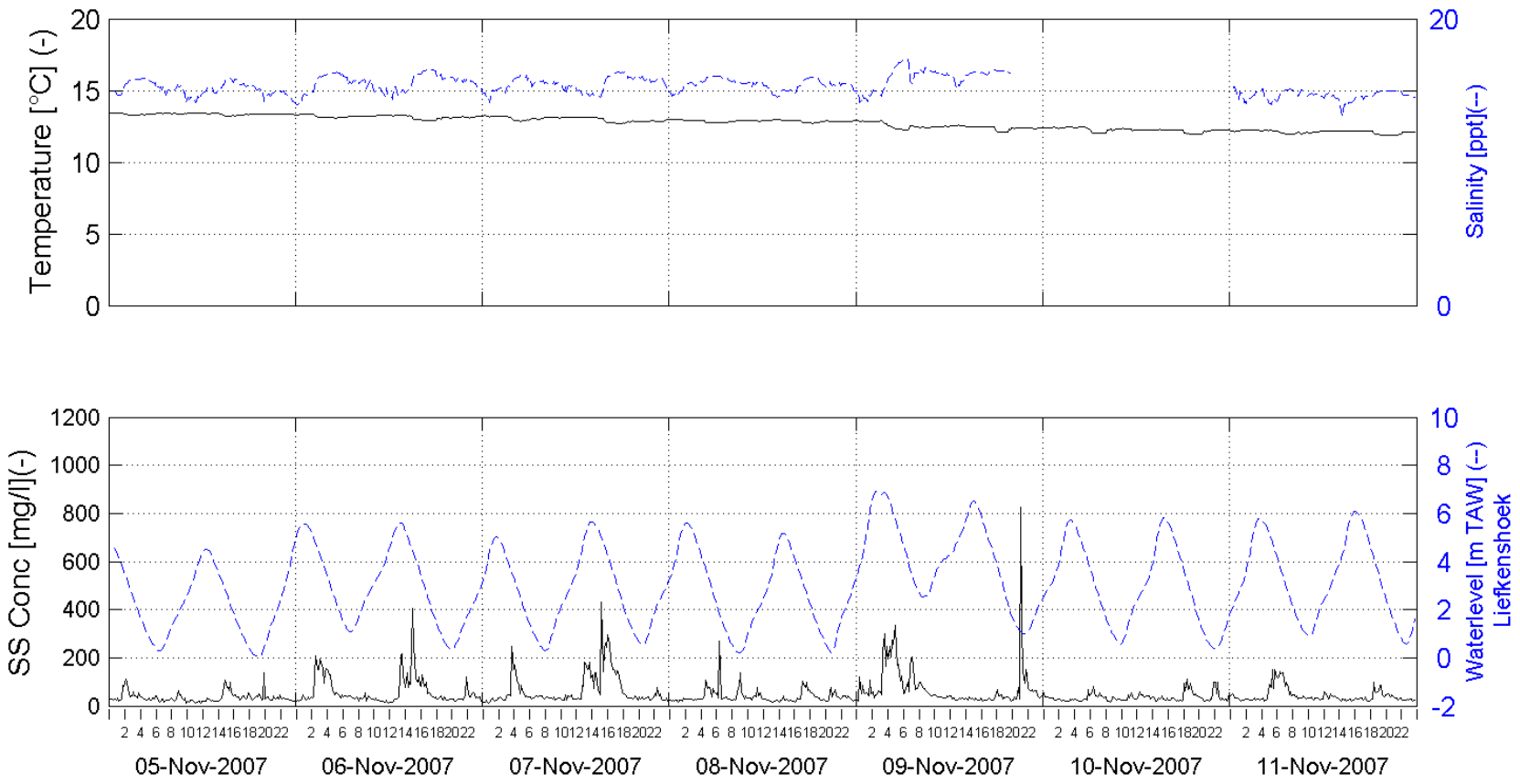
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 45 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

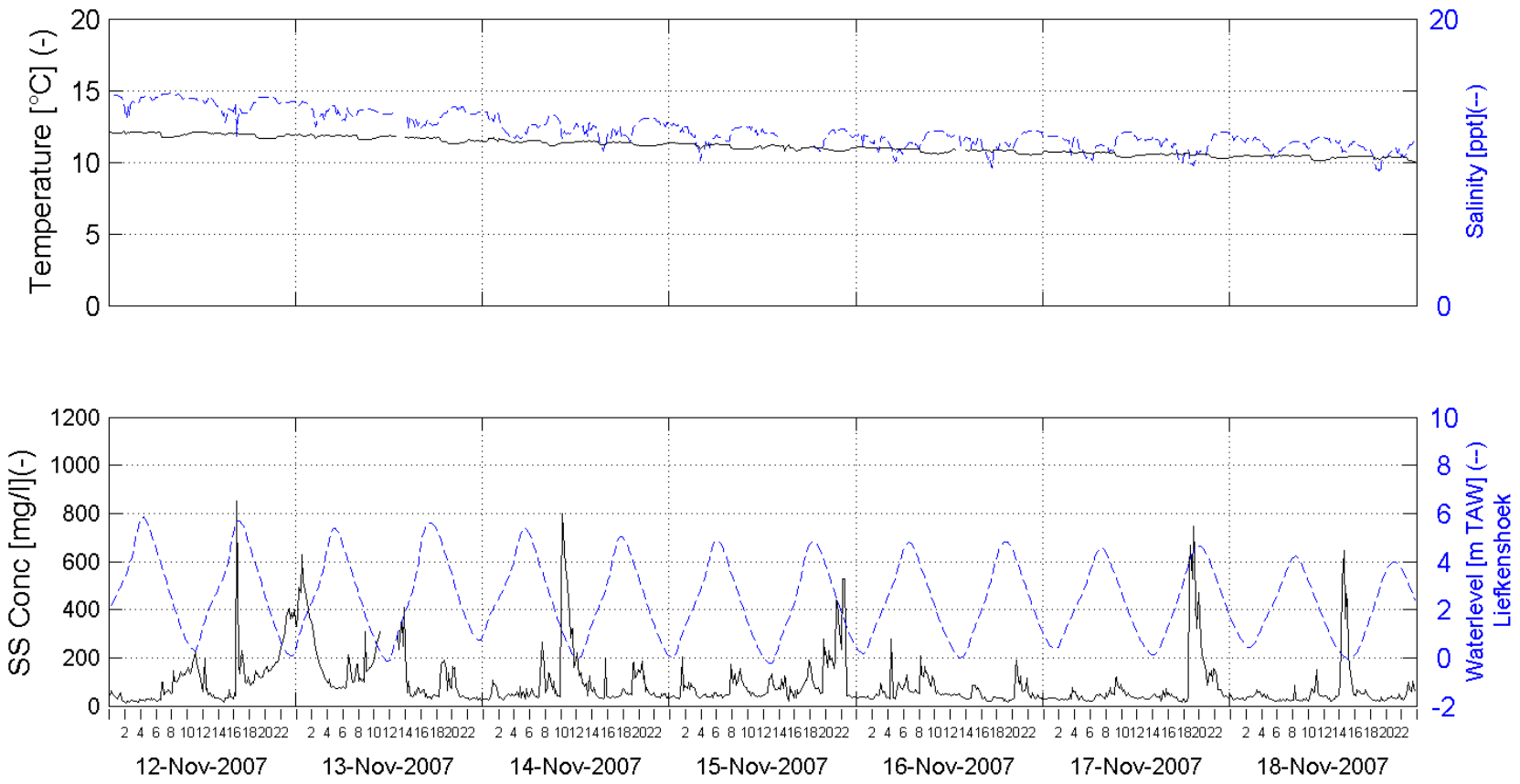
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 46 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

IMDC

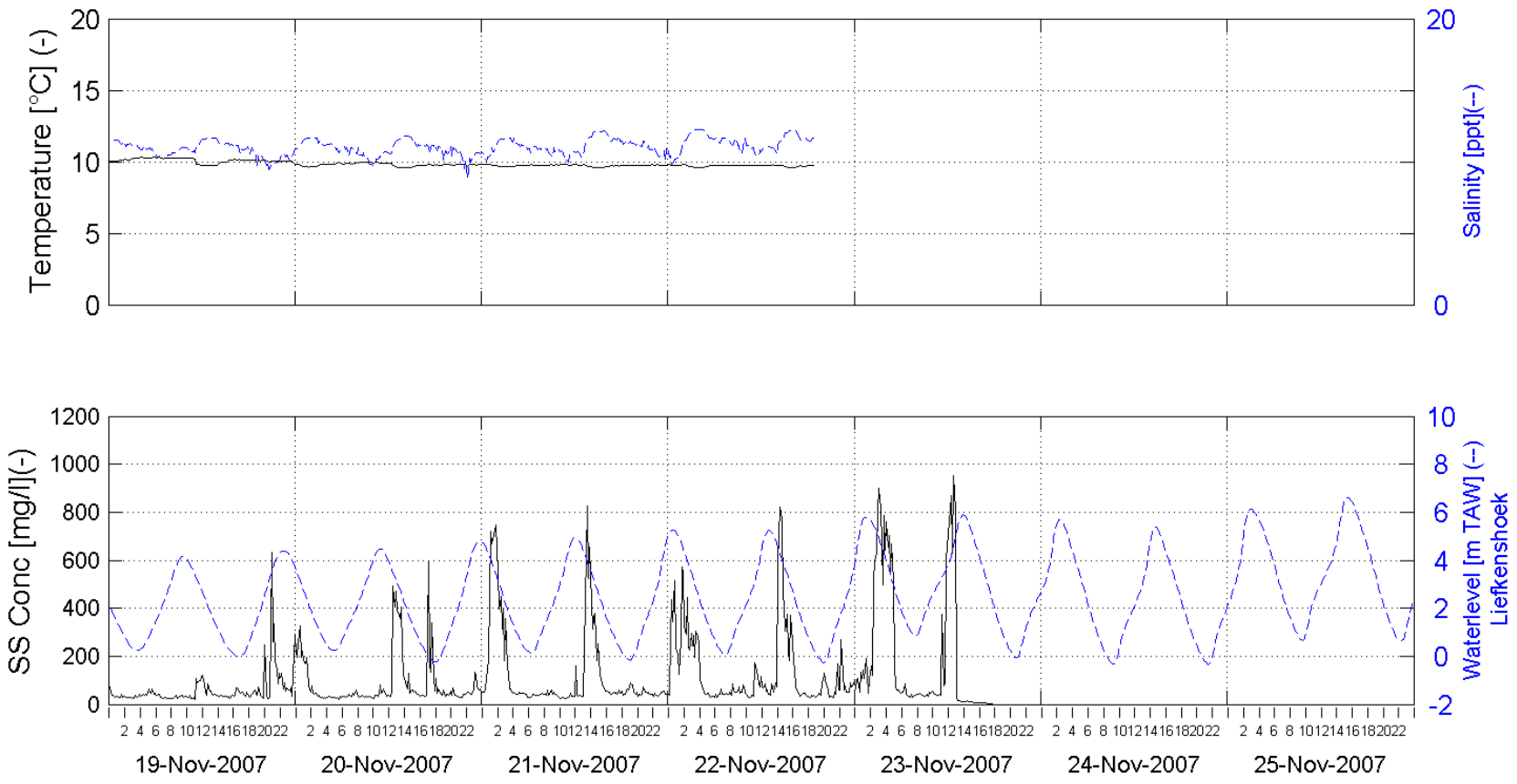
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 47 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

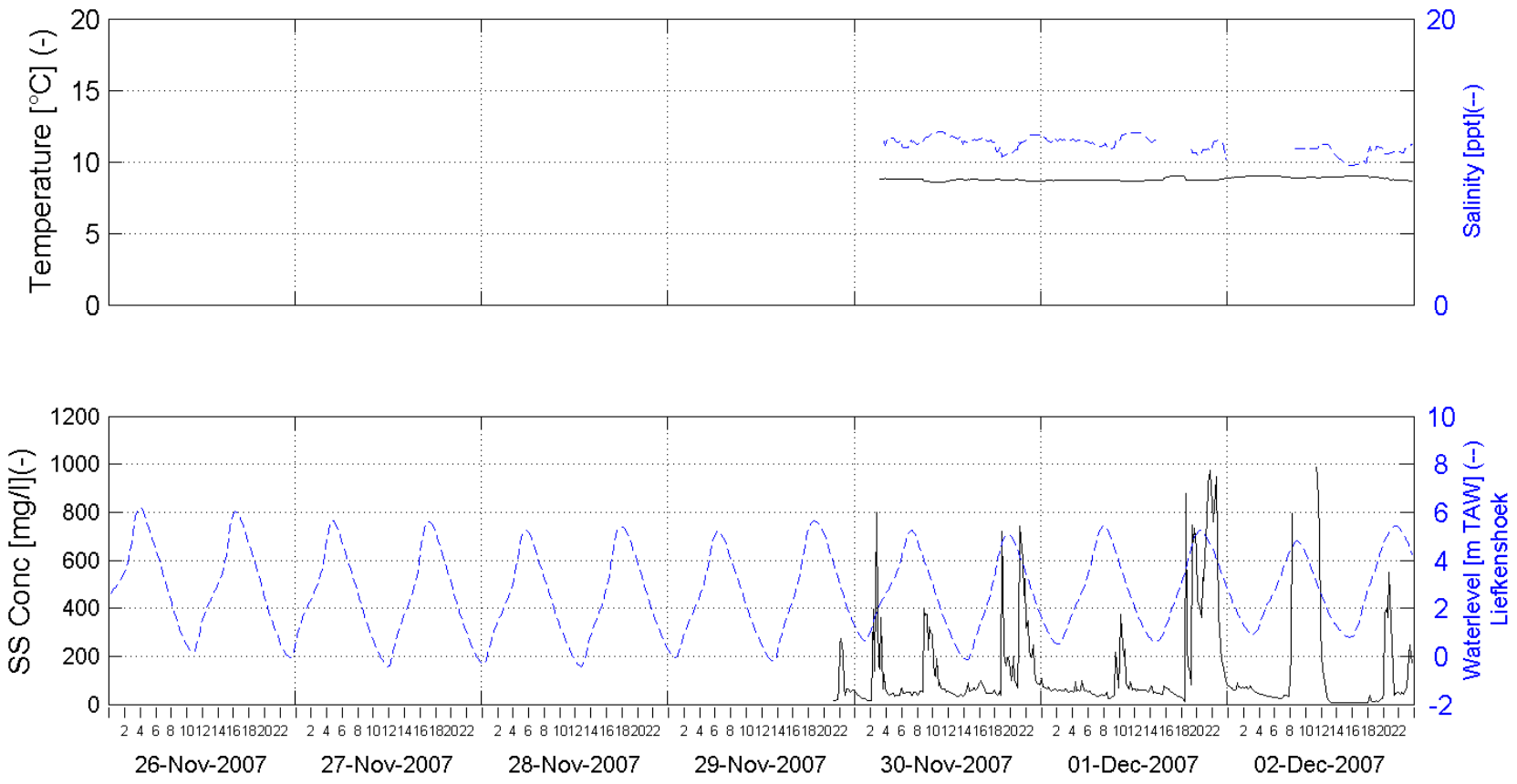
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 48 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

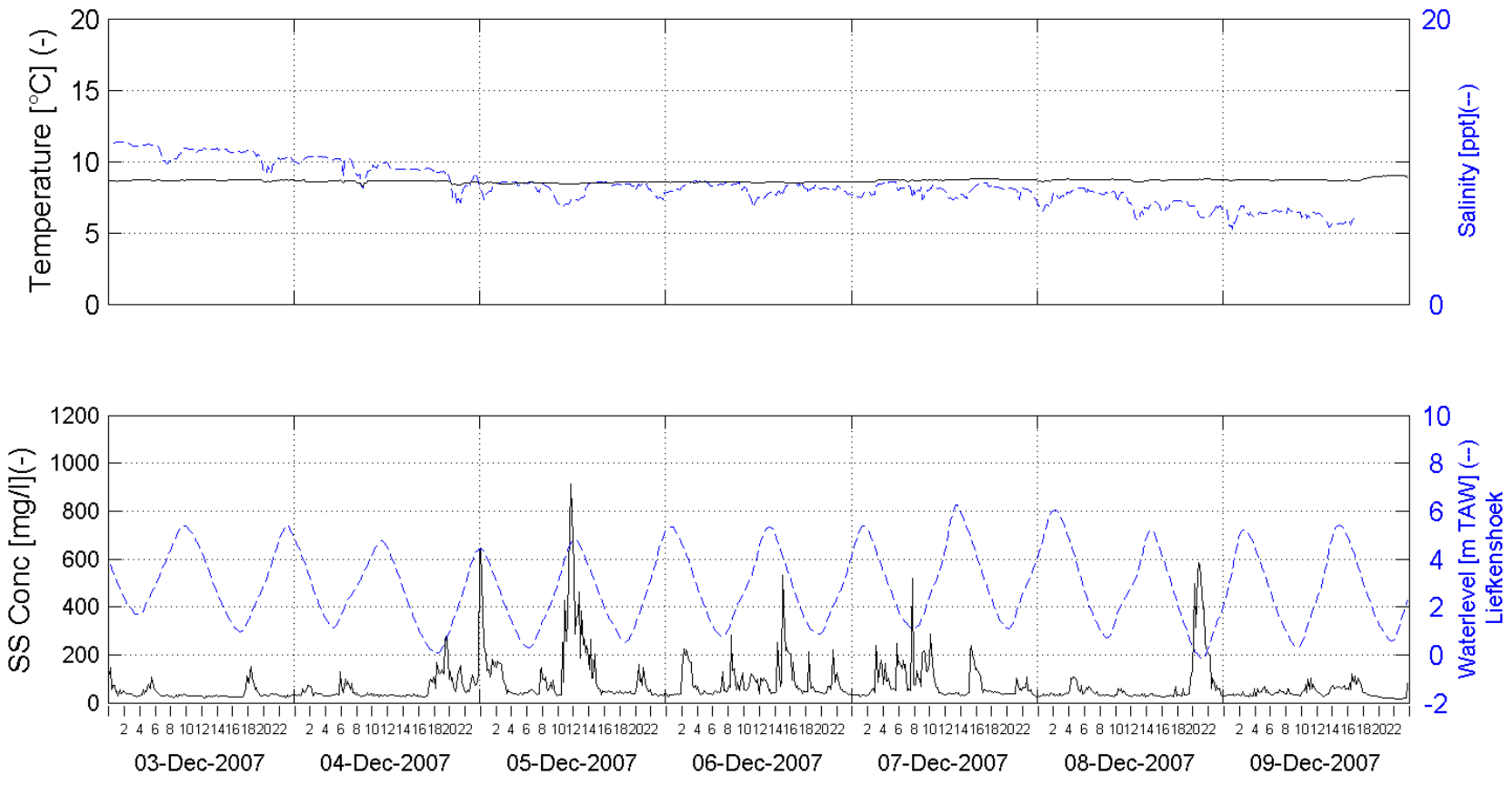
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 49 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

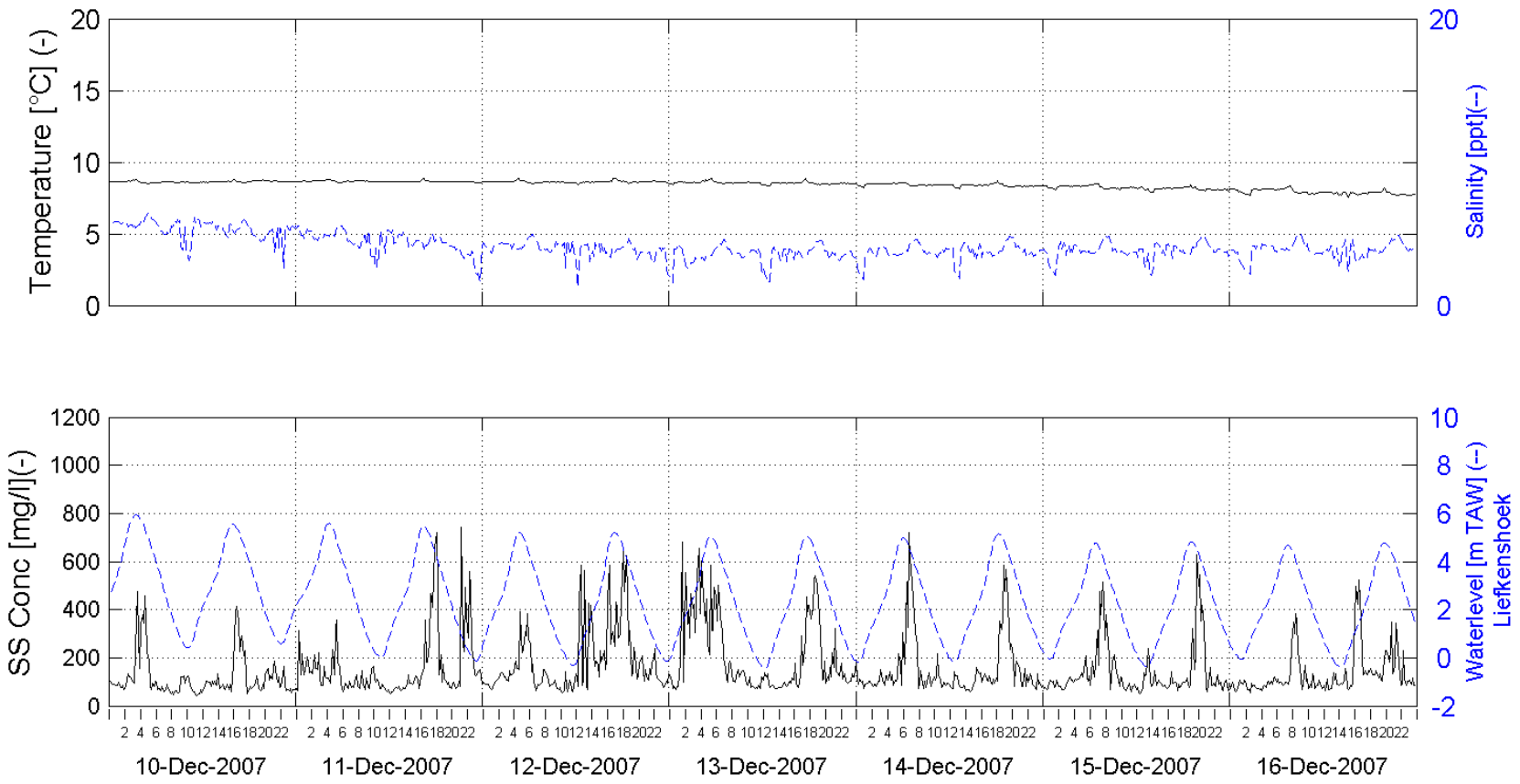
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 50 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

N-ENTRANCE BOTTOM 5.1m above bottom (-11.9m TAW)

Processed by:

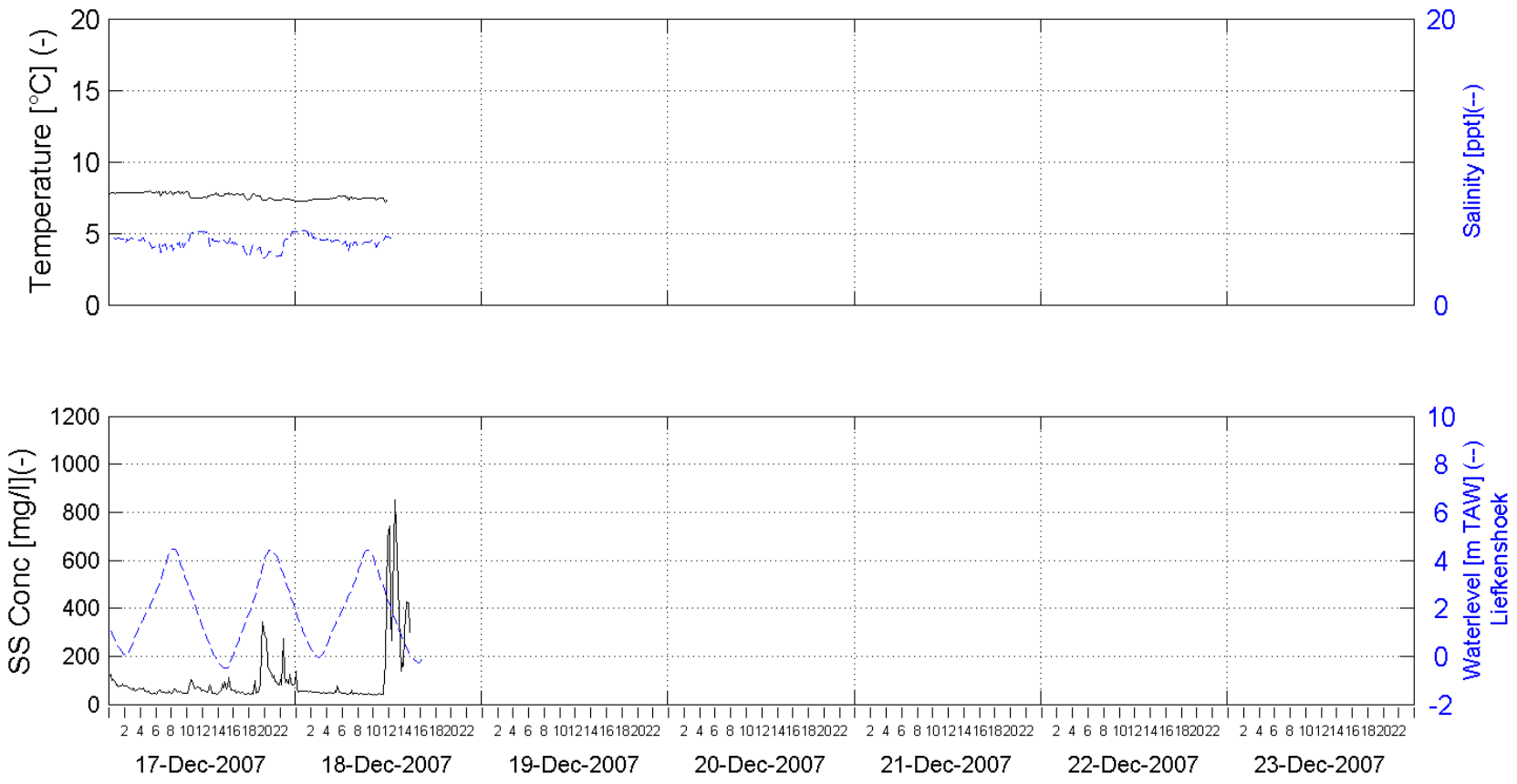
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 51 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK BOTTOM 4.7m above bottom (-12.3m TAW)

Processed by:

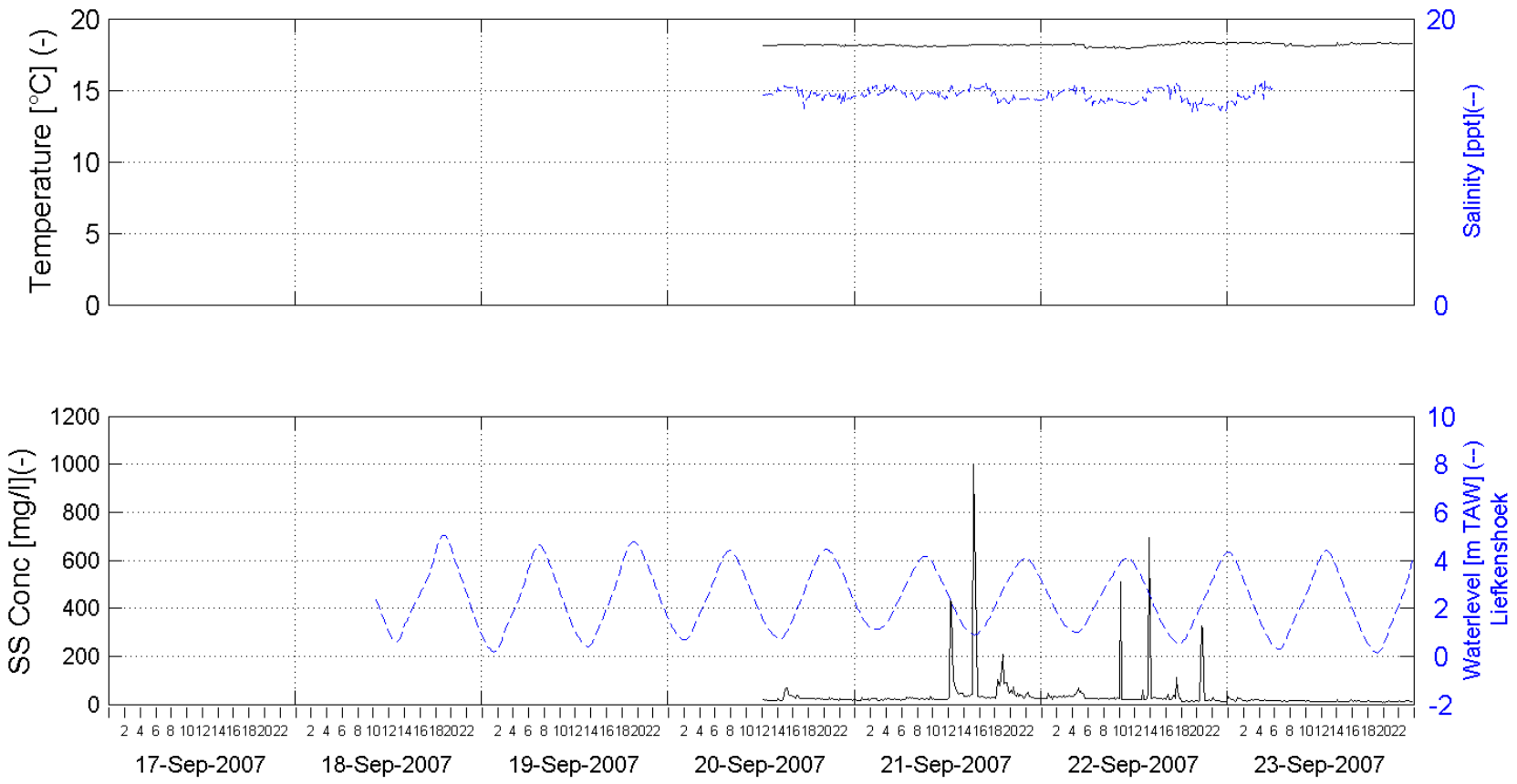
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 38 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

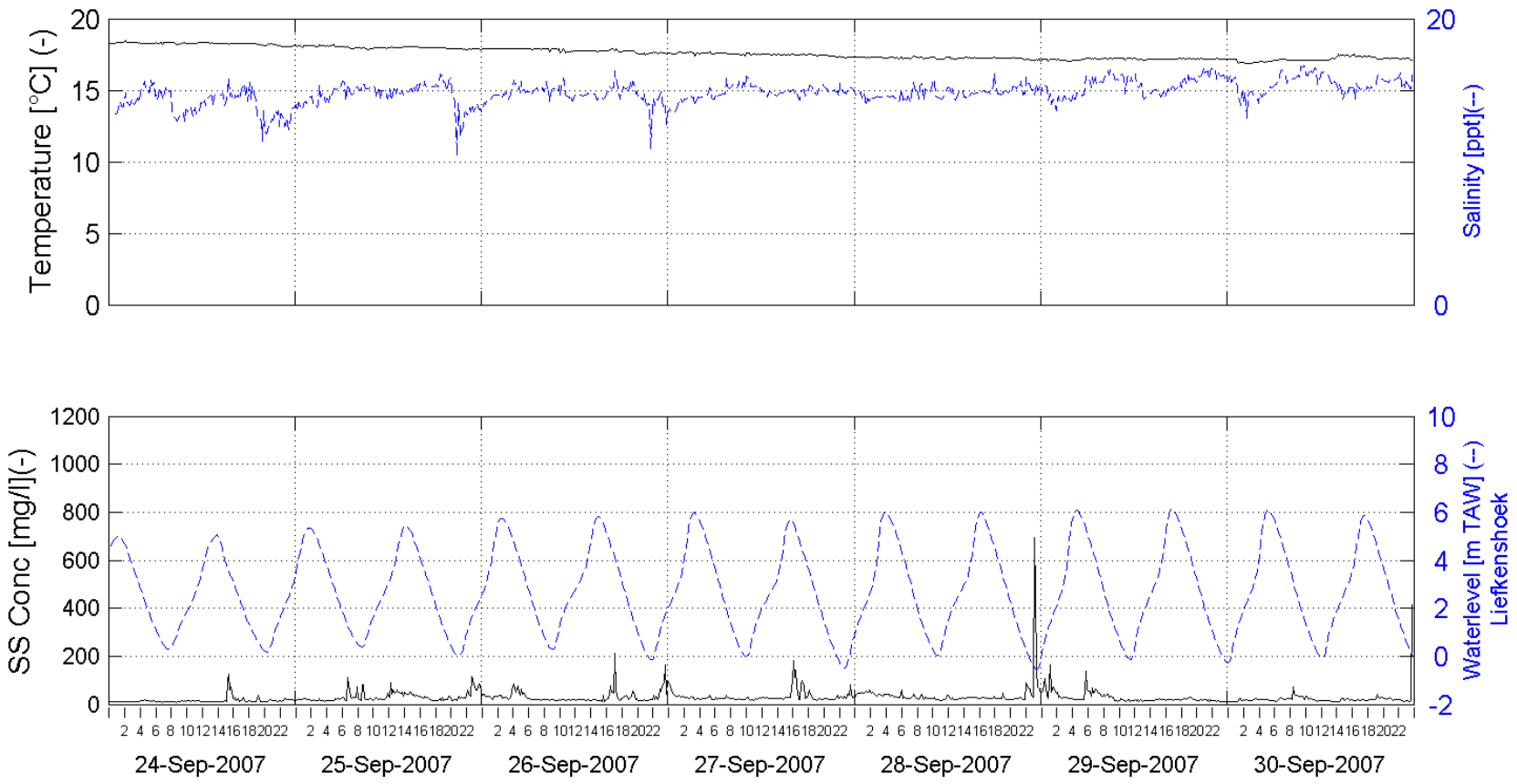
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 39 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

IMDC

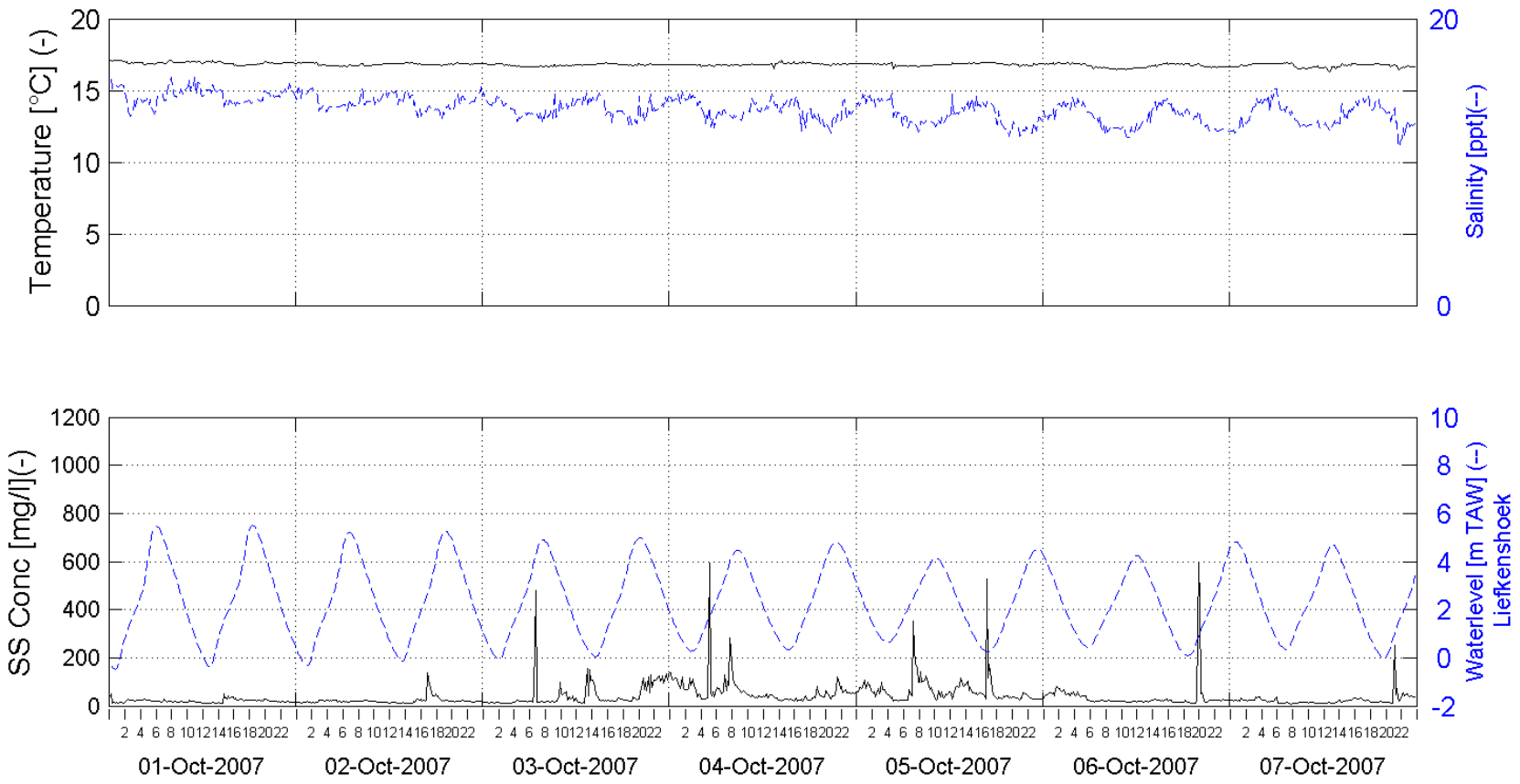
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 40 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

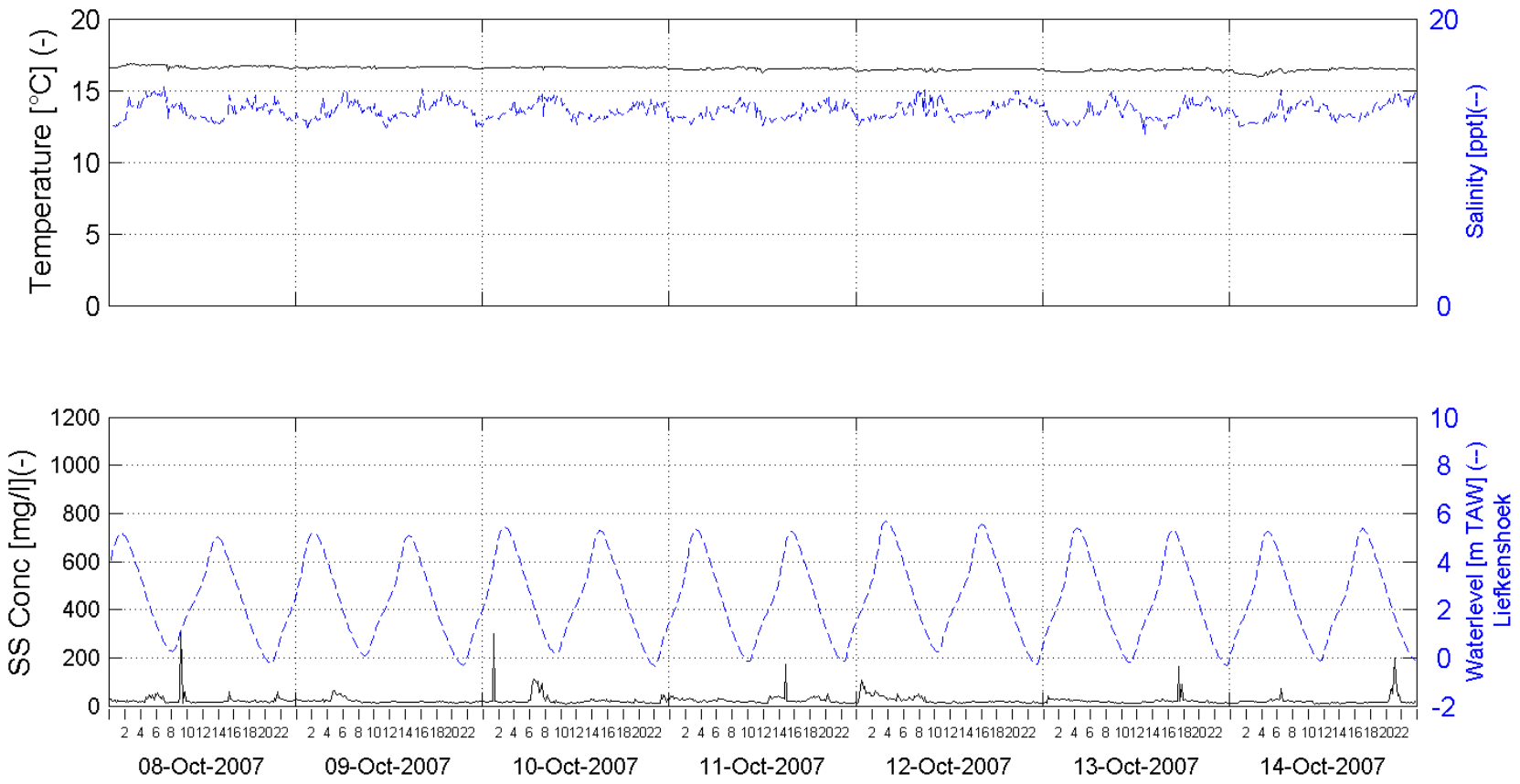
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 41 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

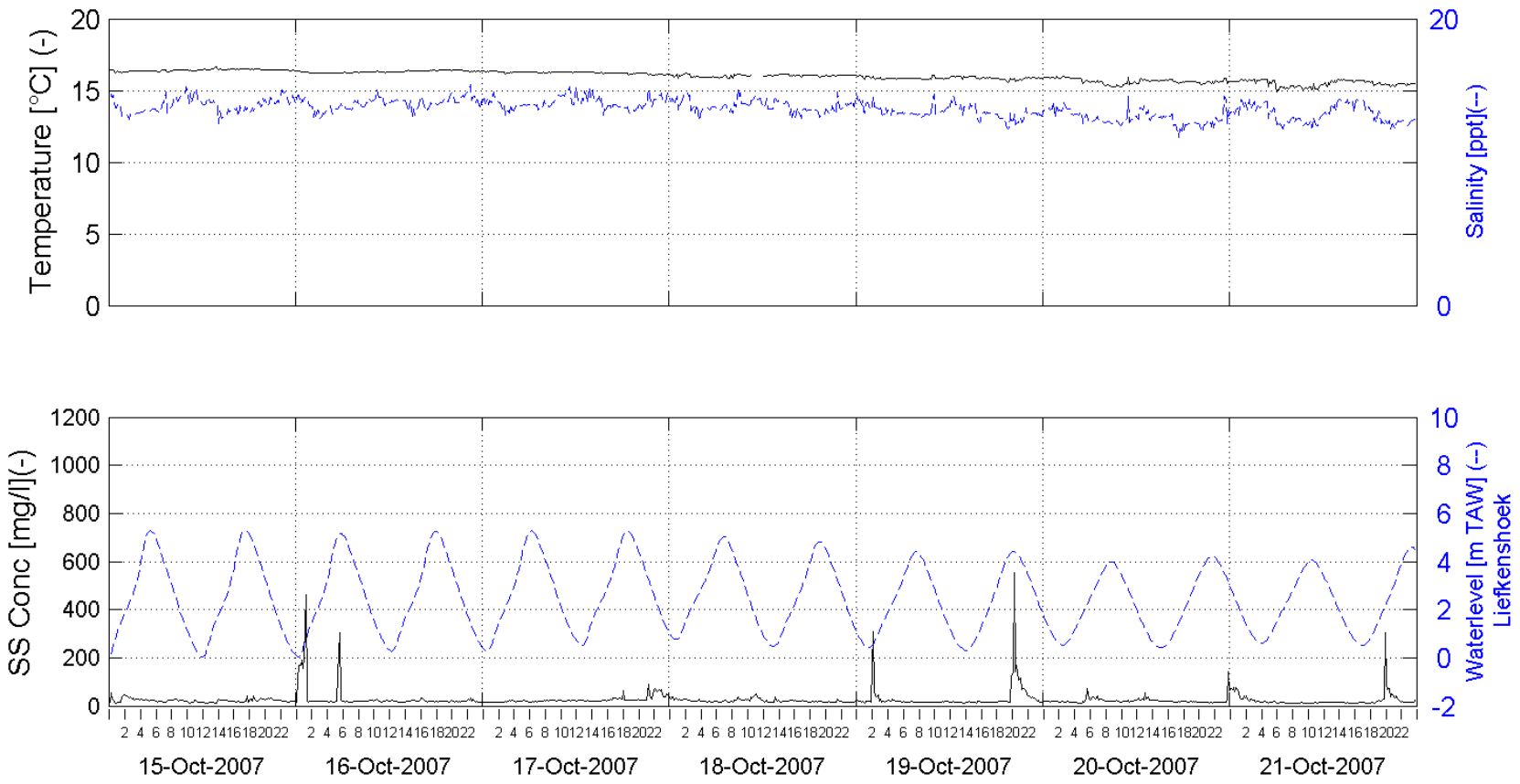
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 42 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

IMDC

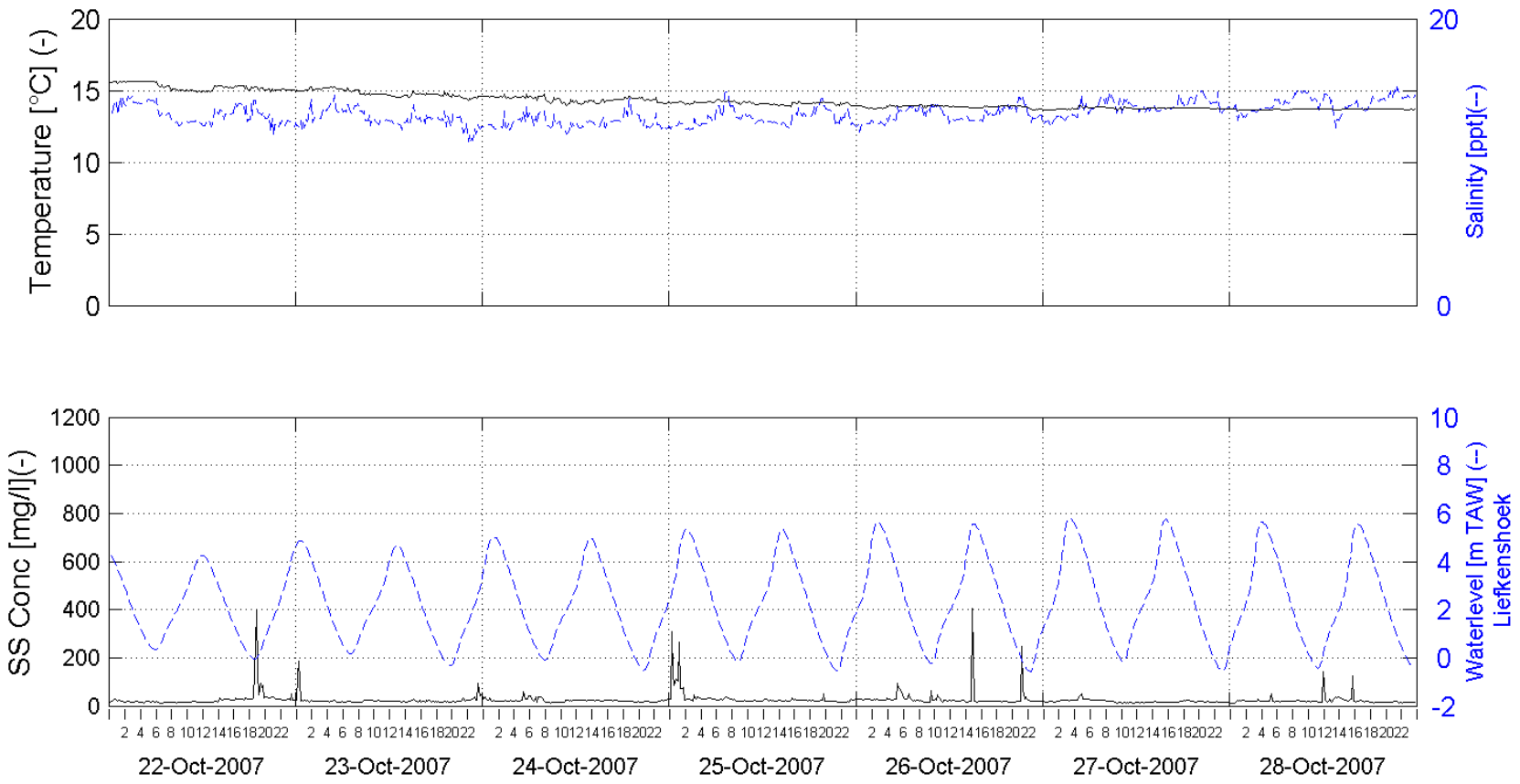
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 43 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

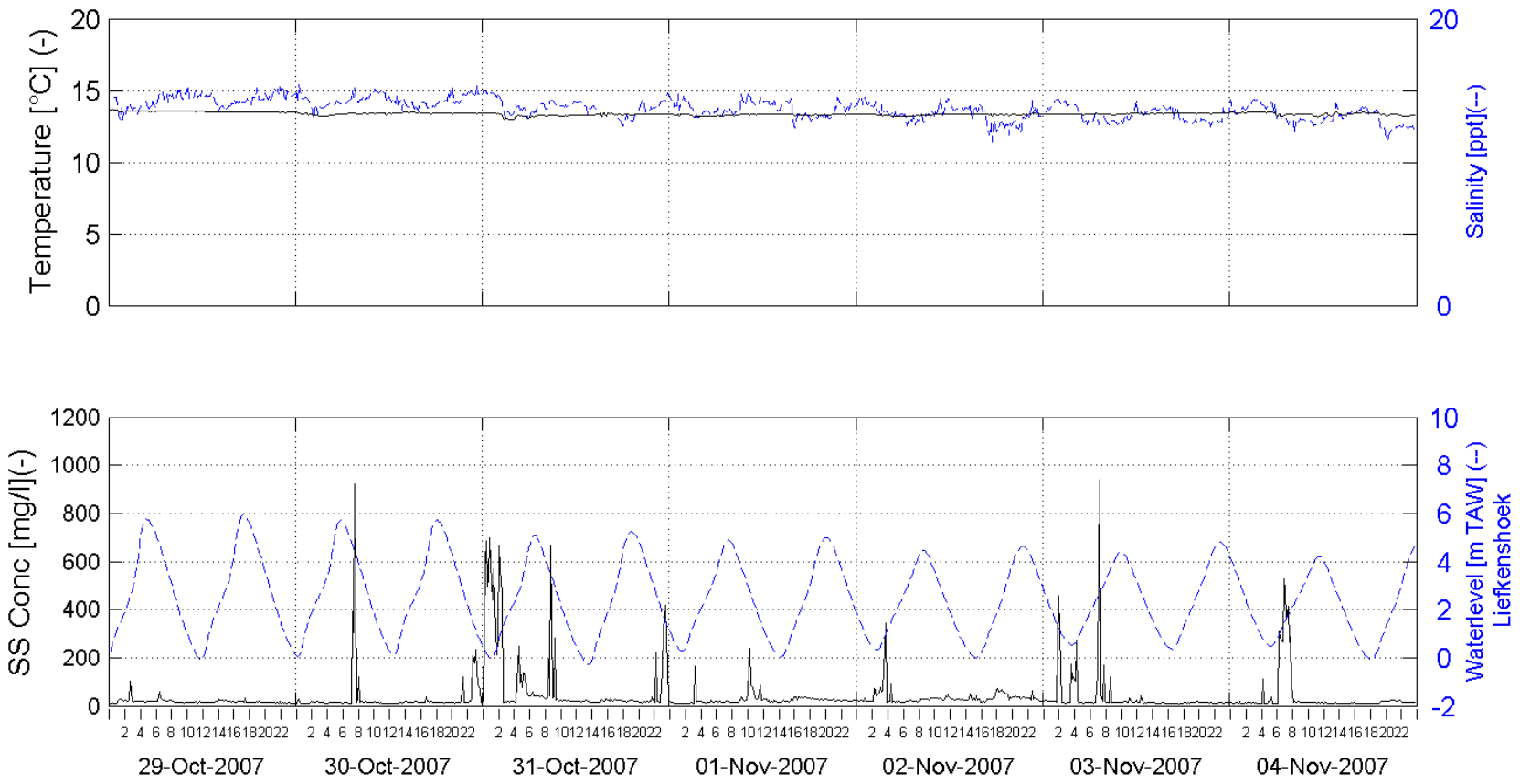
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 44 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

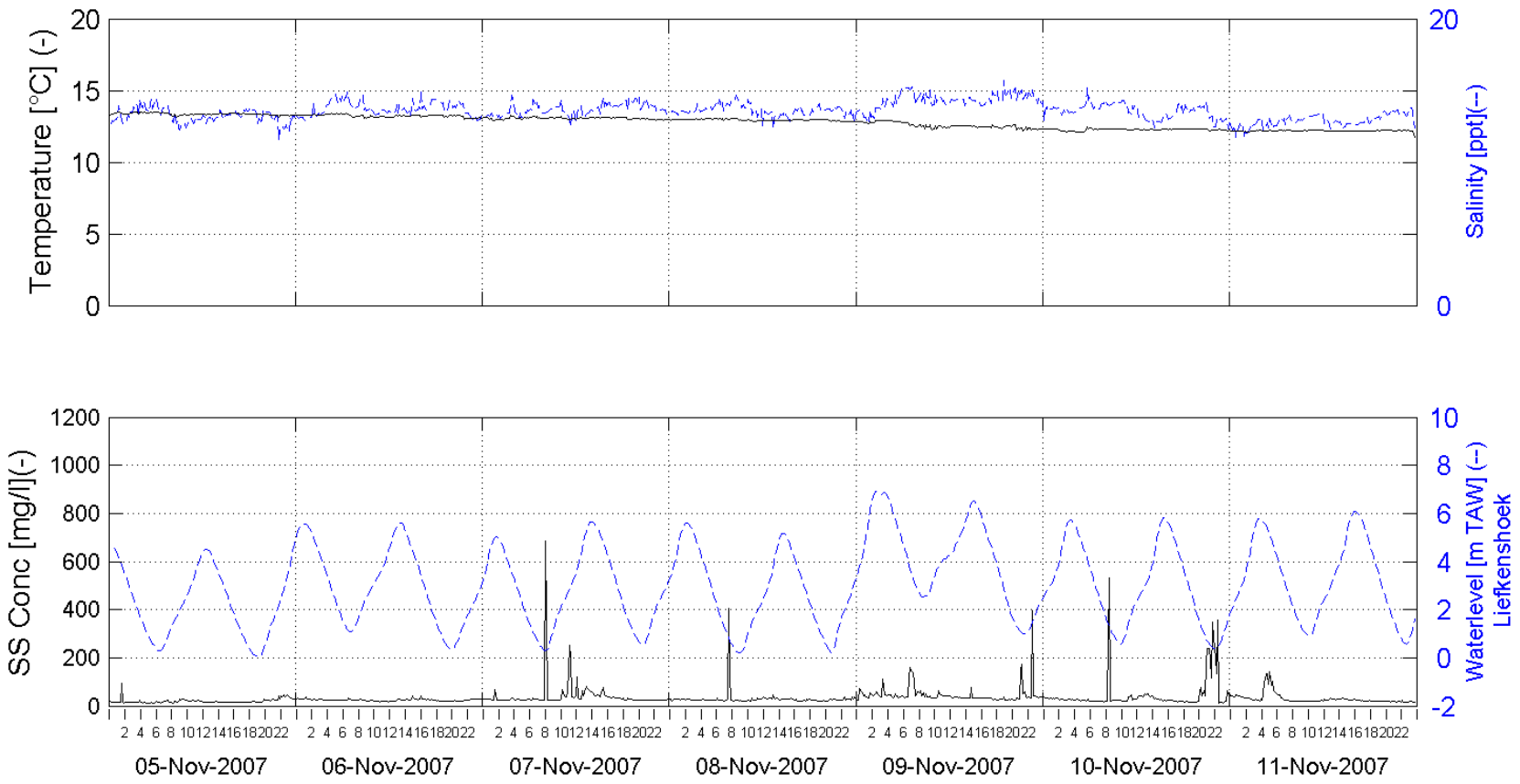
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 45 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

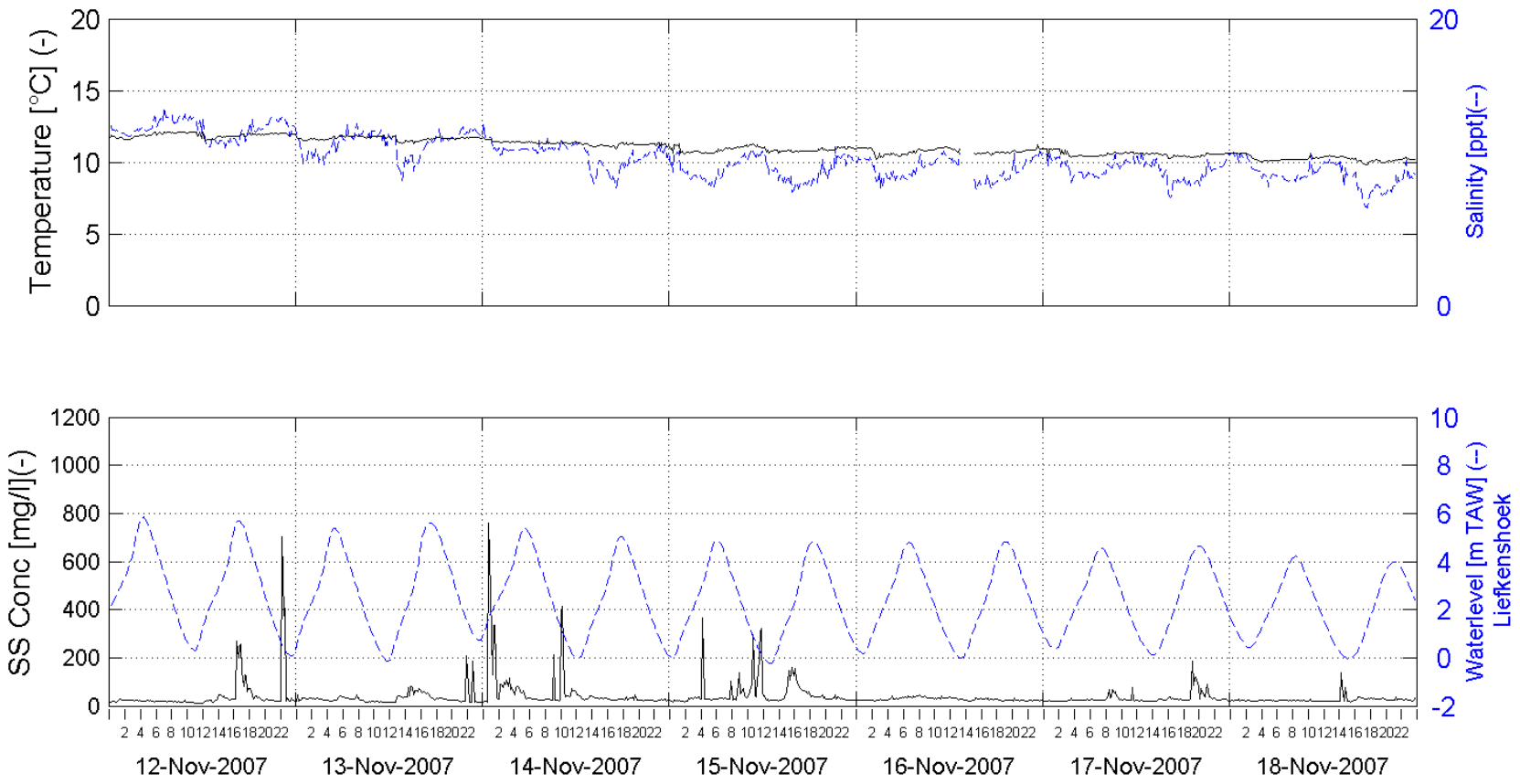
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 46 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

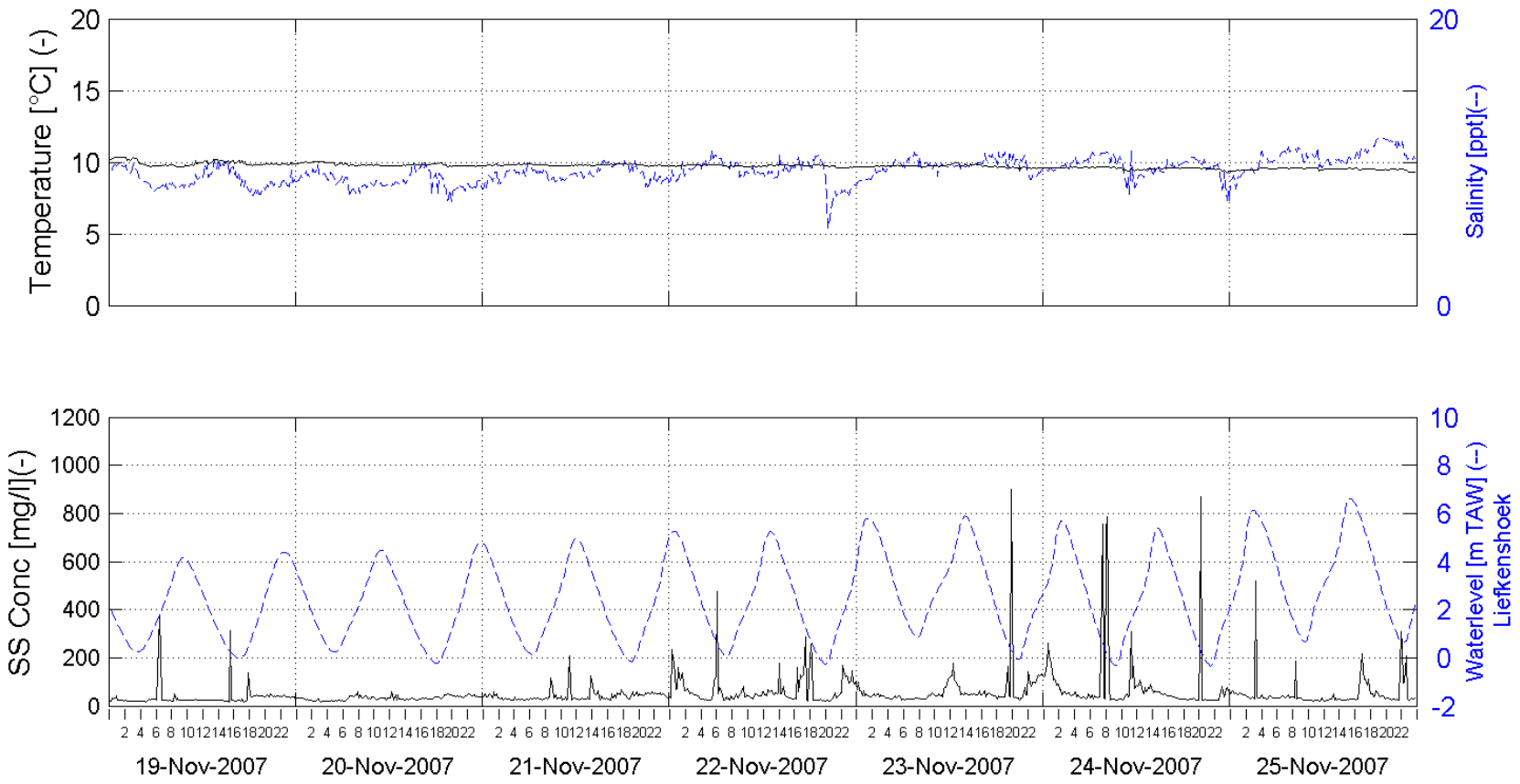
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 47 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

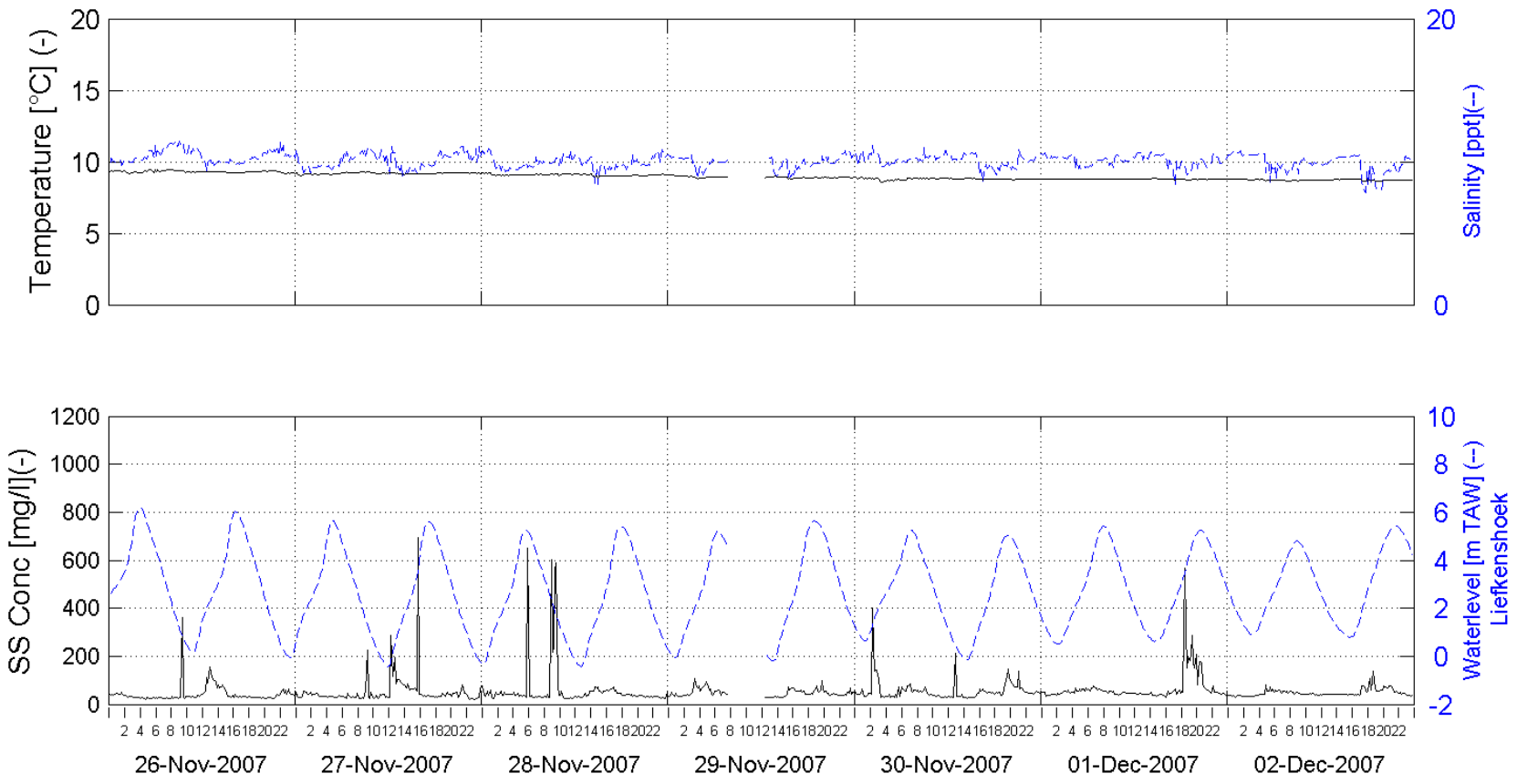
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 48 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

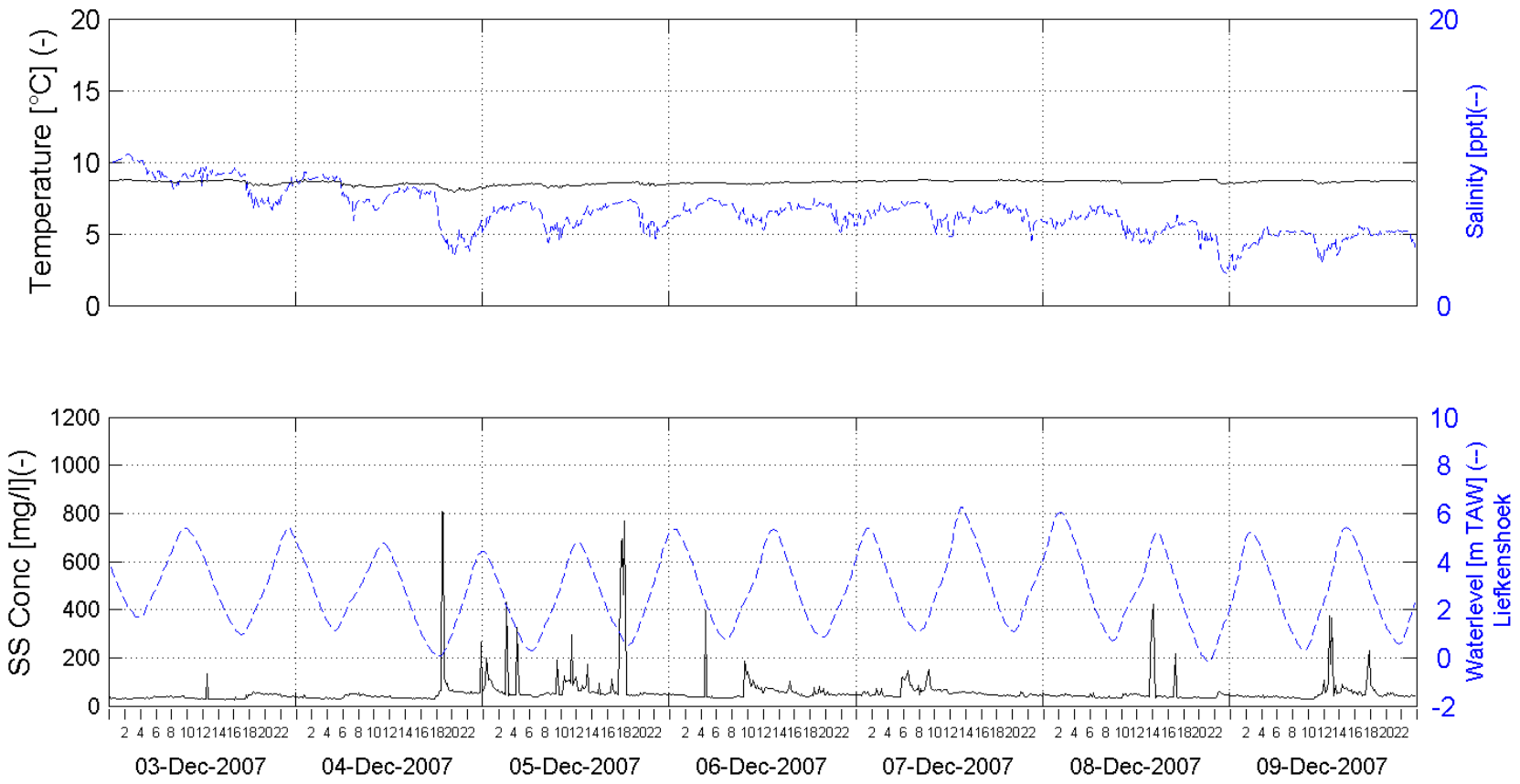
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 49 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

IMDC

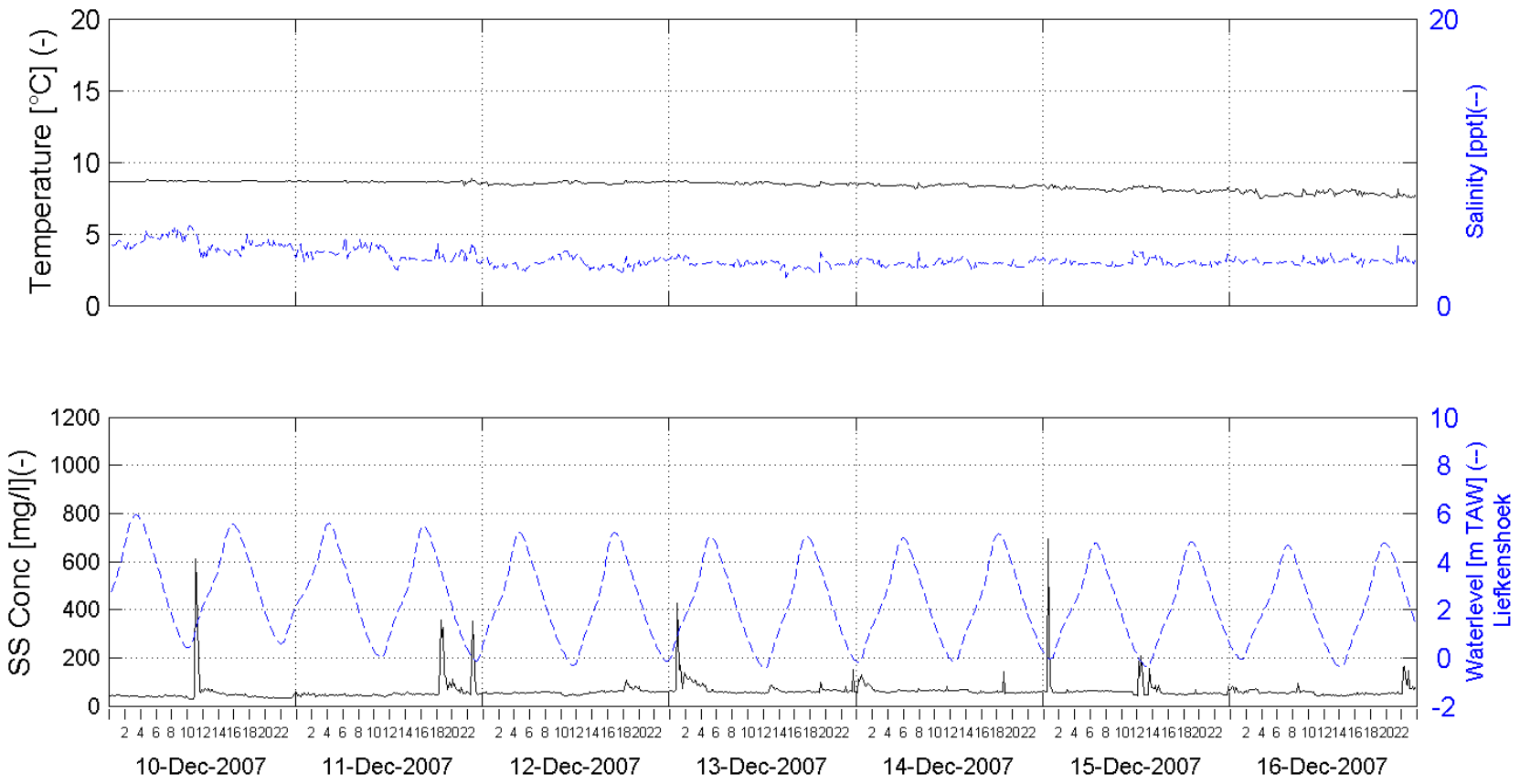
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 50 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

IMDC

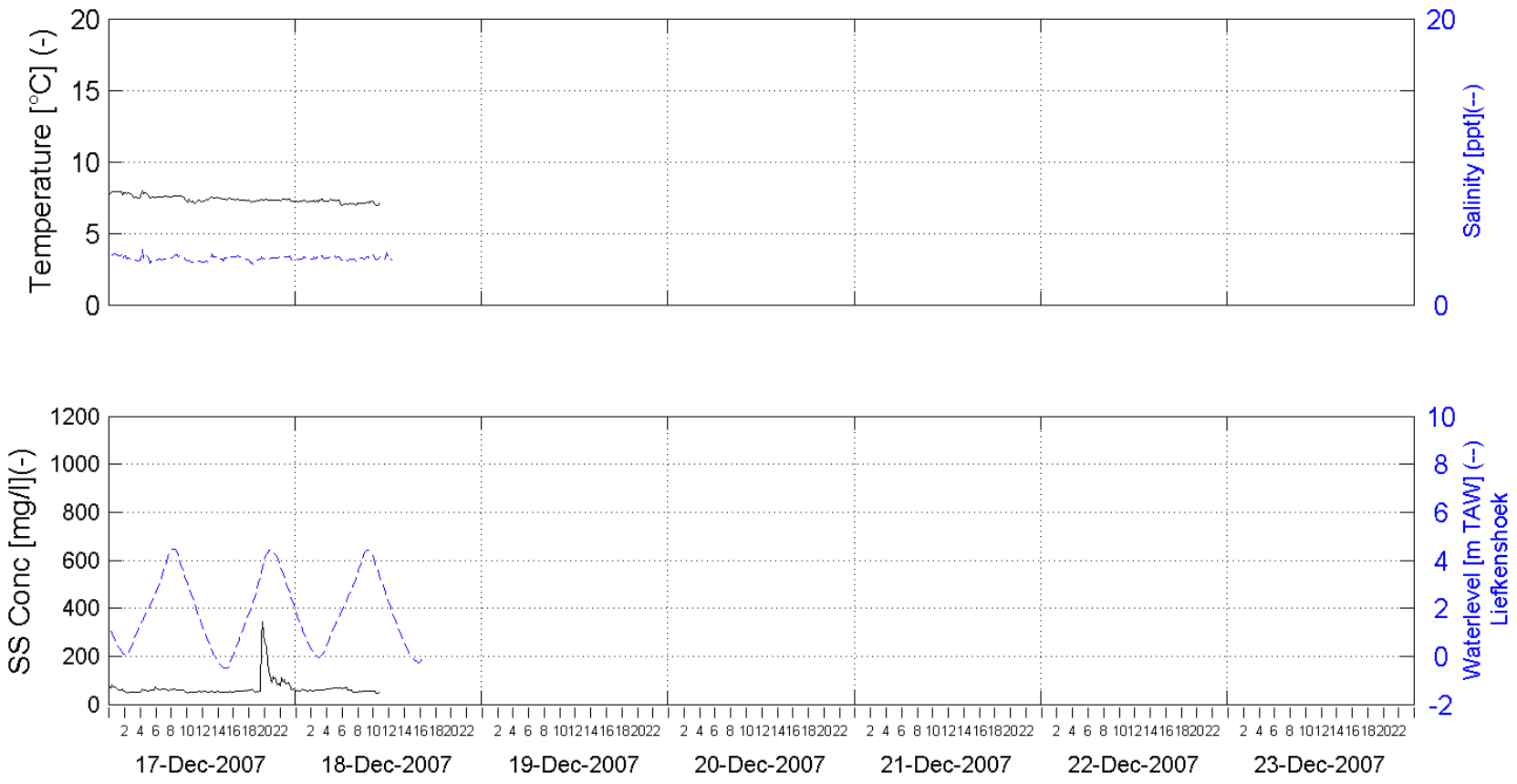
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 51 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-BACK TOP 14.3m above bottom (-2.7m TAW)

Processed by:

IMDC

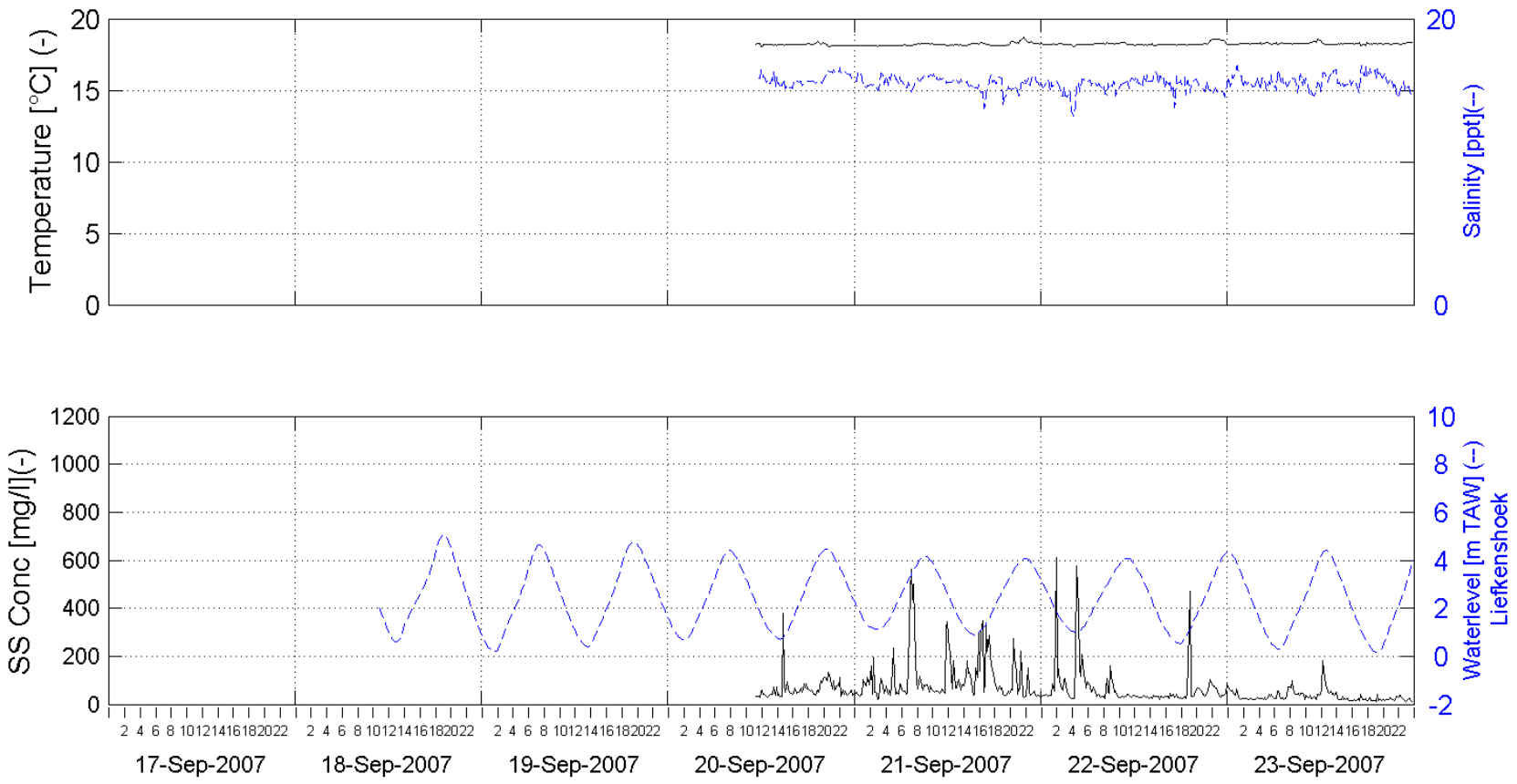
In Association with:

I/RA/11283/07.093/MSA

## B.3 P&O 2 (S-ENTRANCE)

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 38 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

IMDC

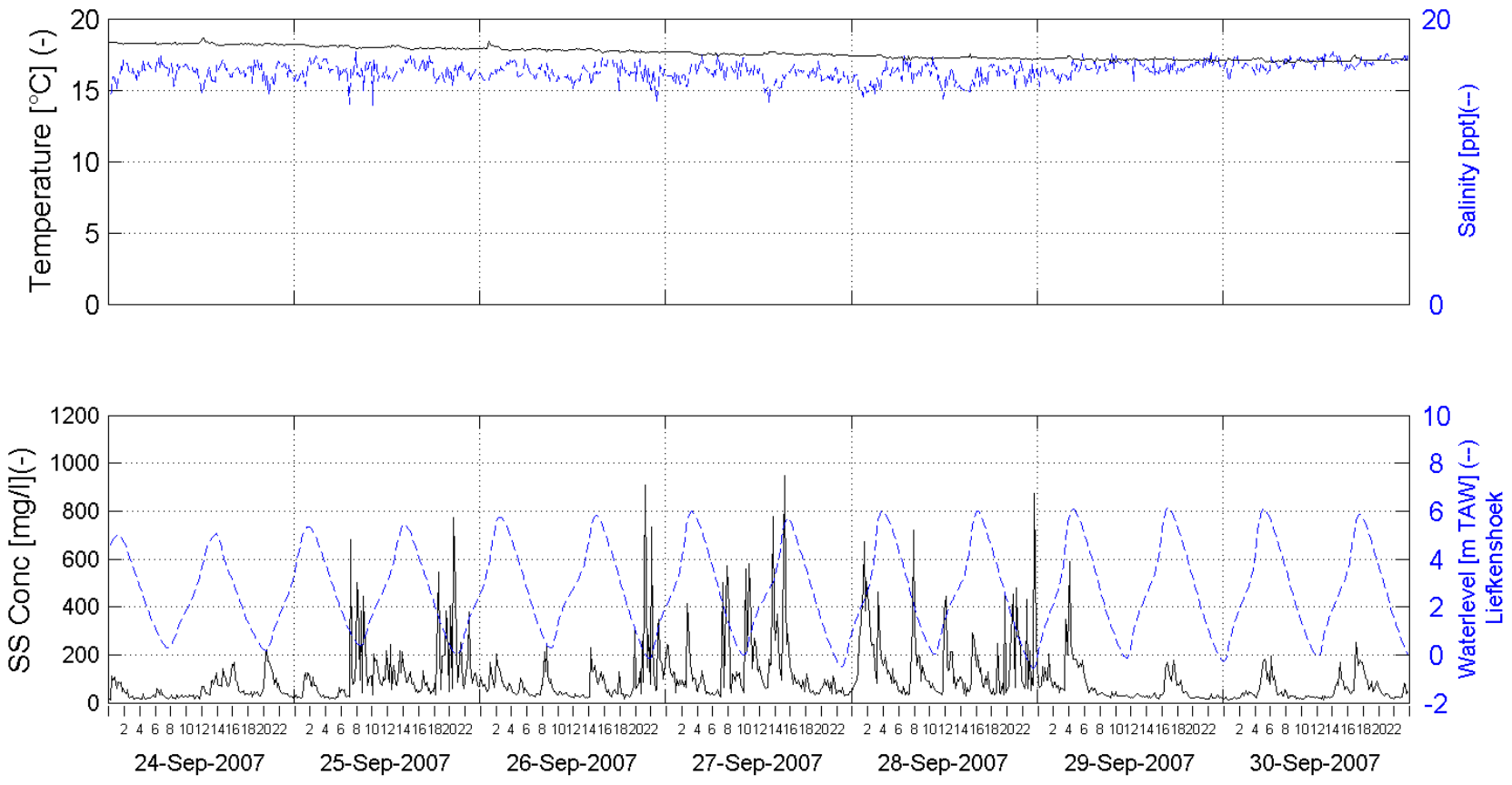
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 39 - 2007

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Processed by:

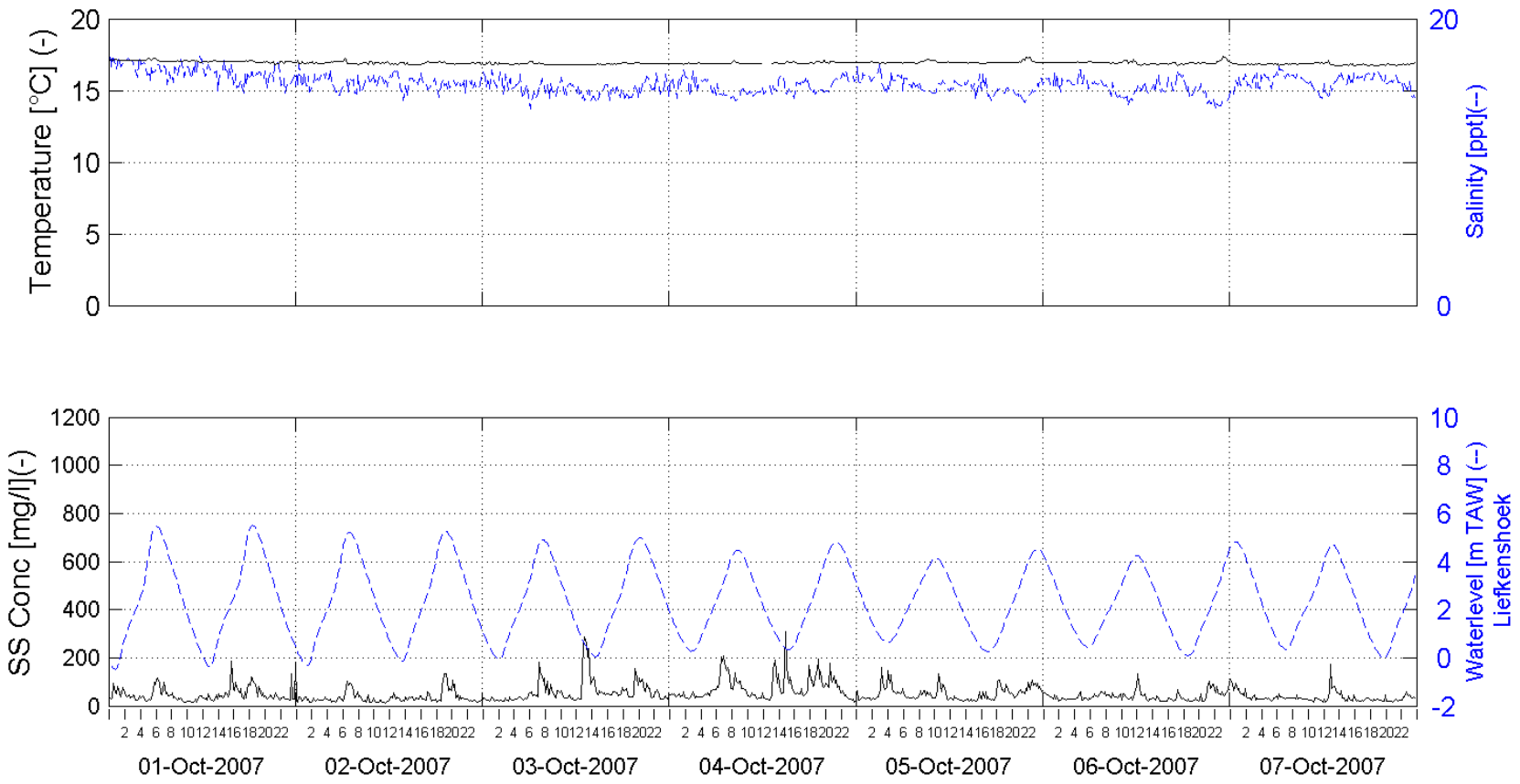
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 40 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

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Processed by:

IMDC

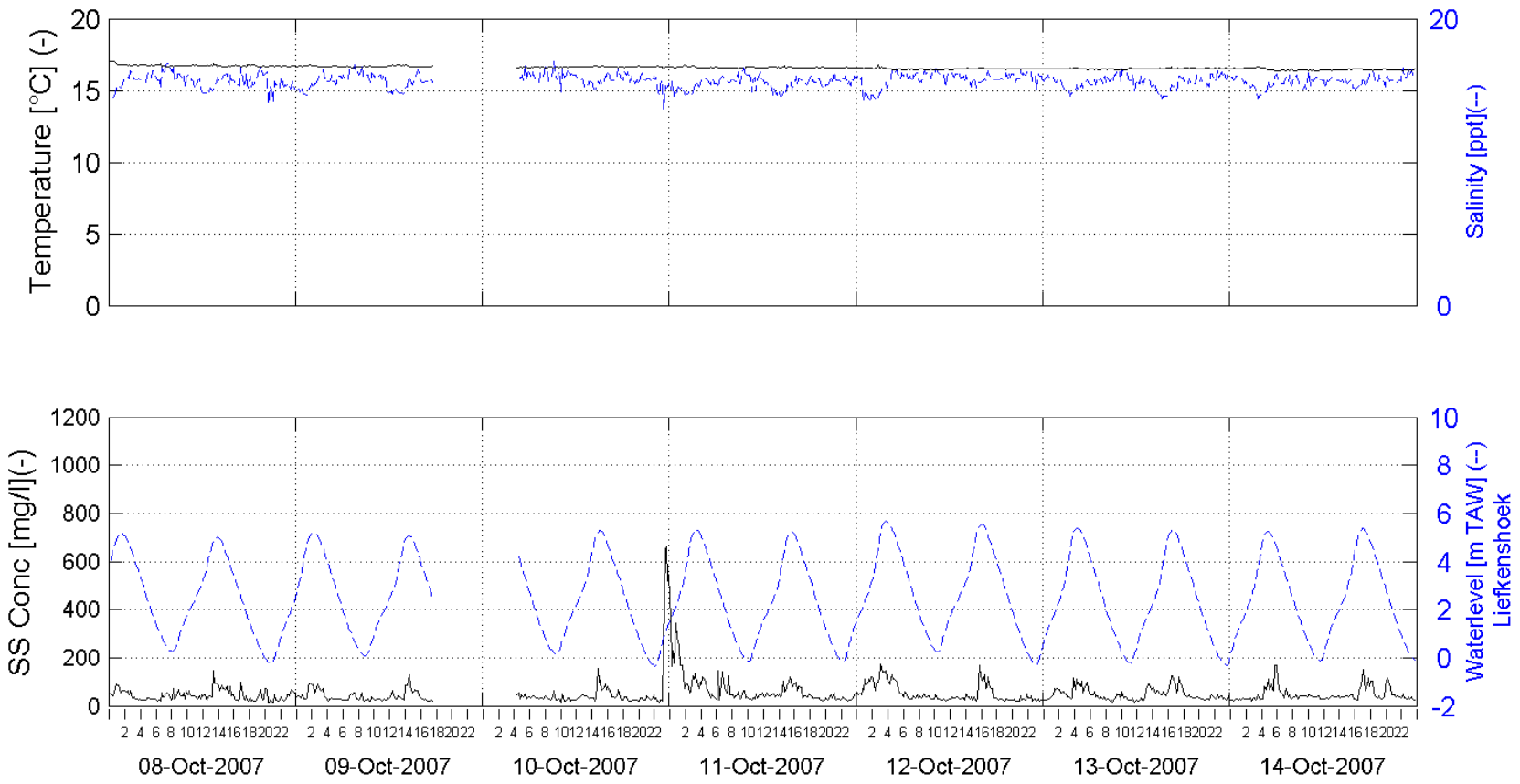
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 41 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

IMDC

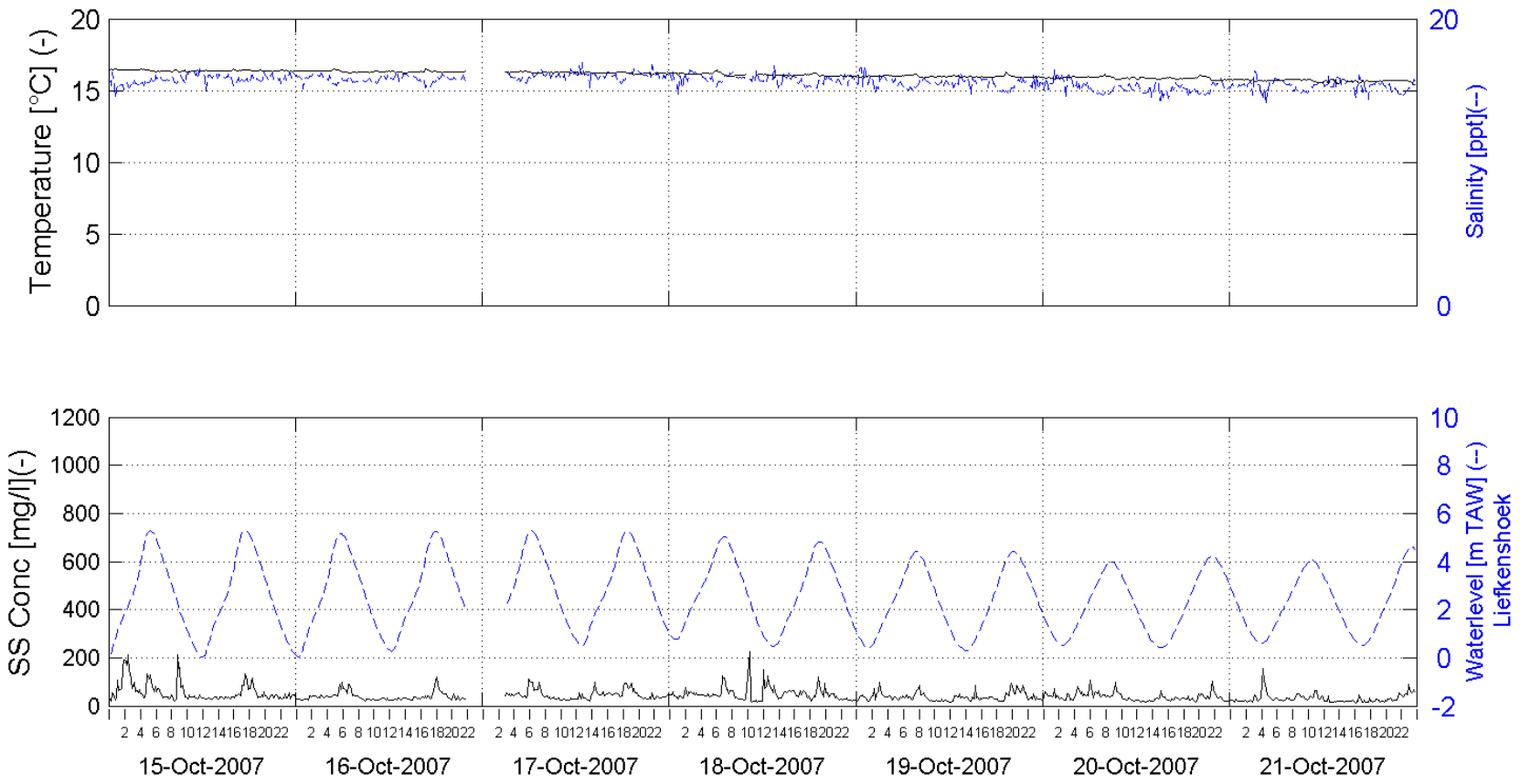
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 42 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

IMDC

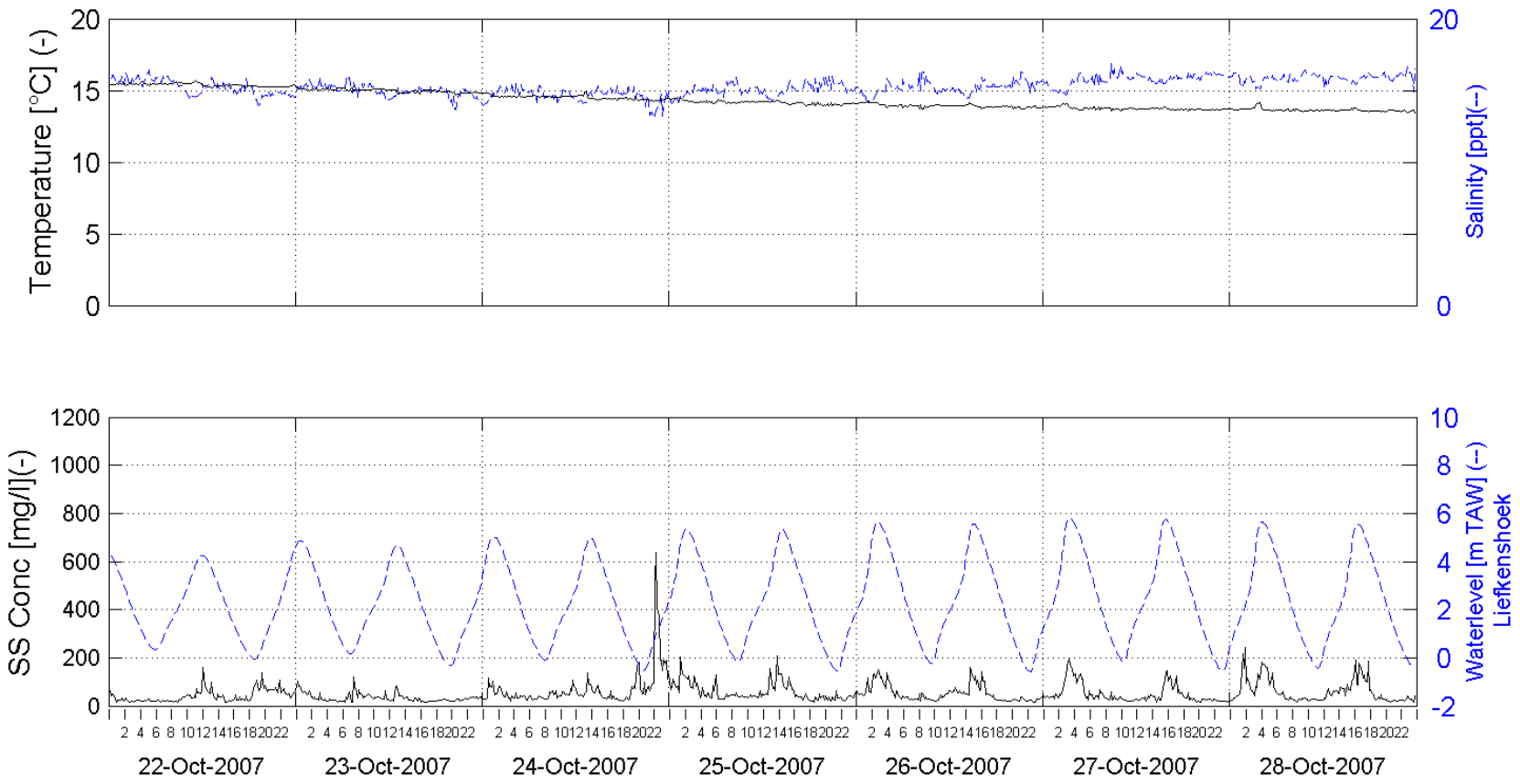
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 43 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

IMDC

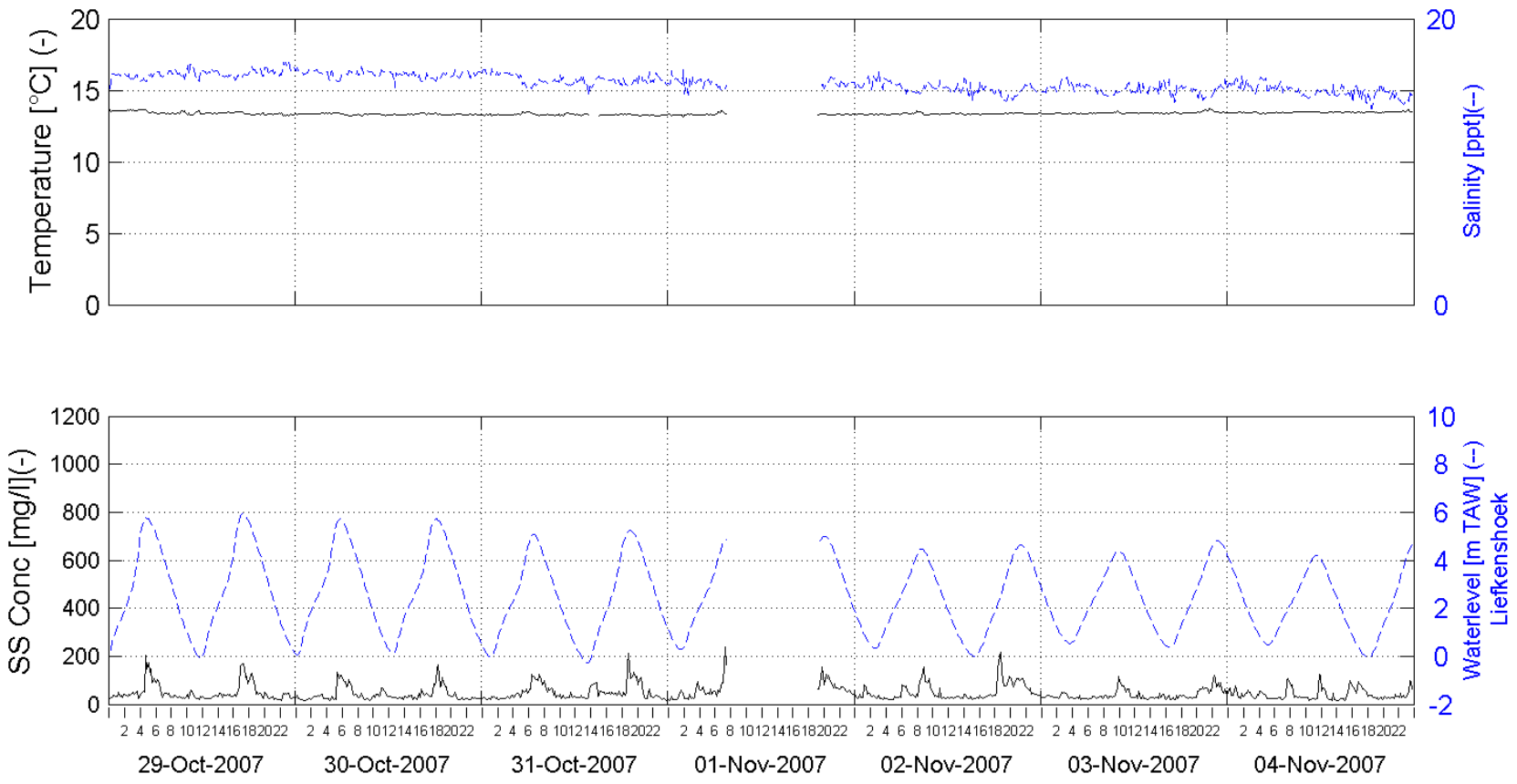
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 44 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

IMDC

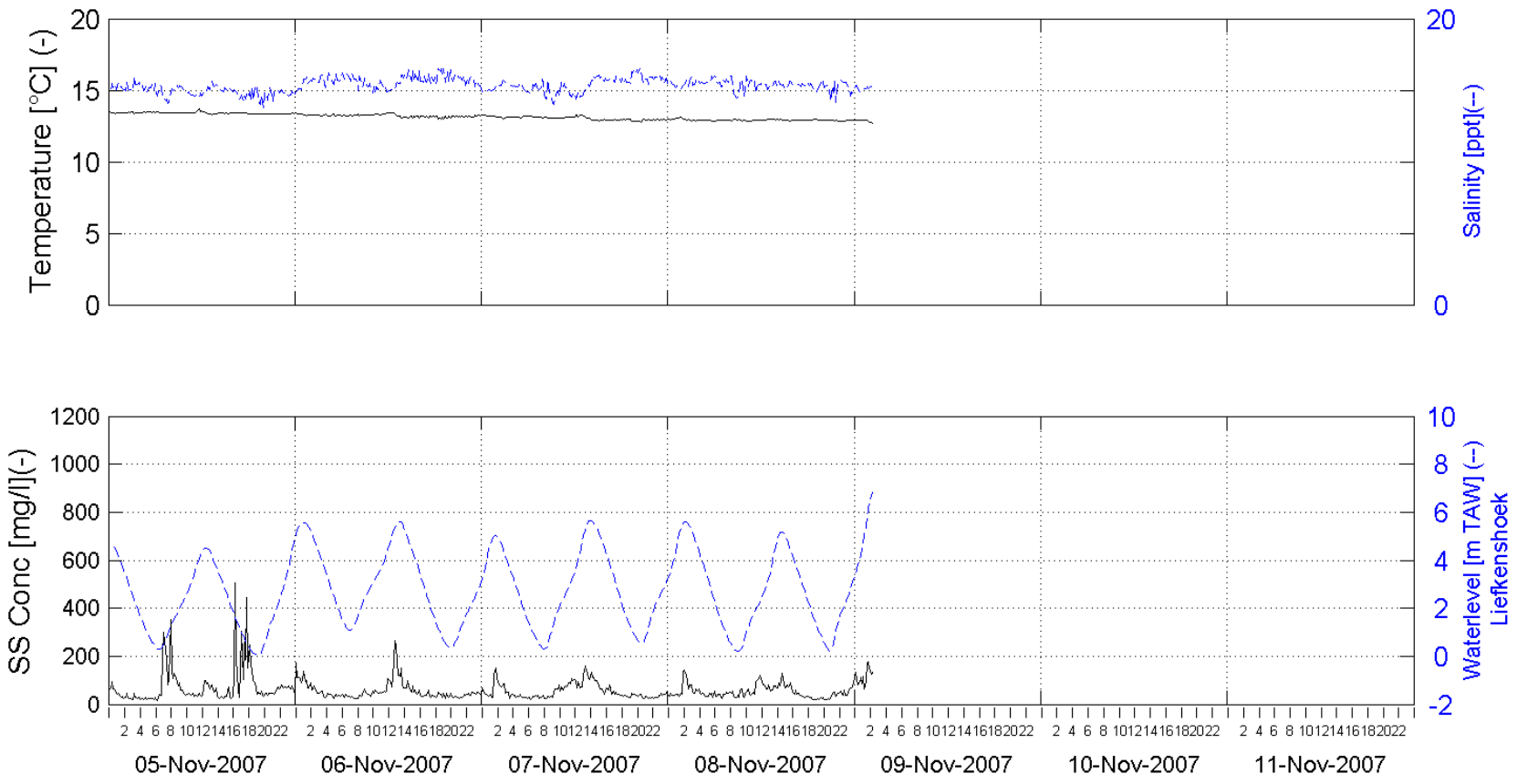
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 45 - 2007




Week series of Salinity, Temperature,
SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

IMDC

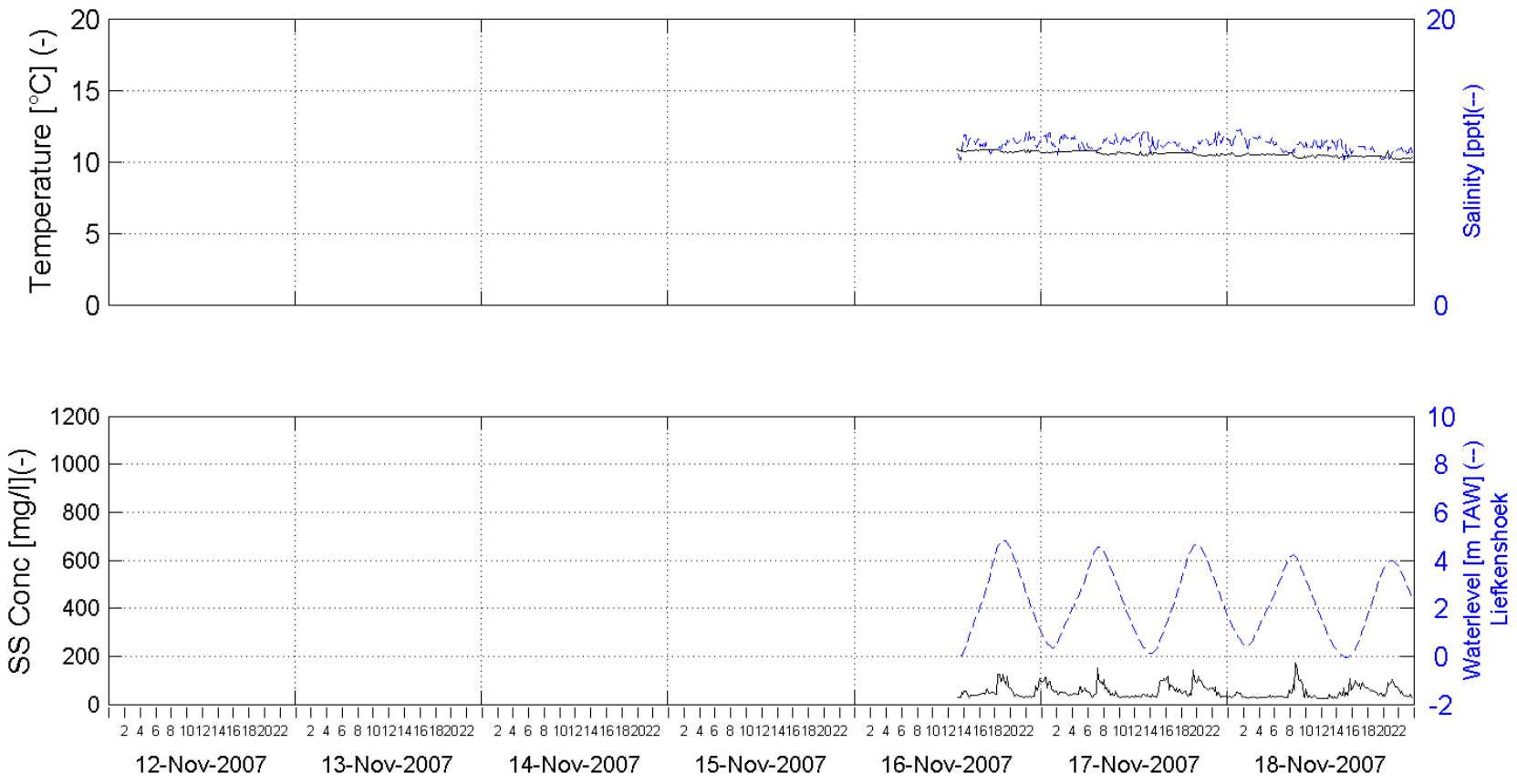
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 46 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

IMDC

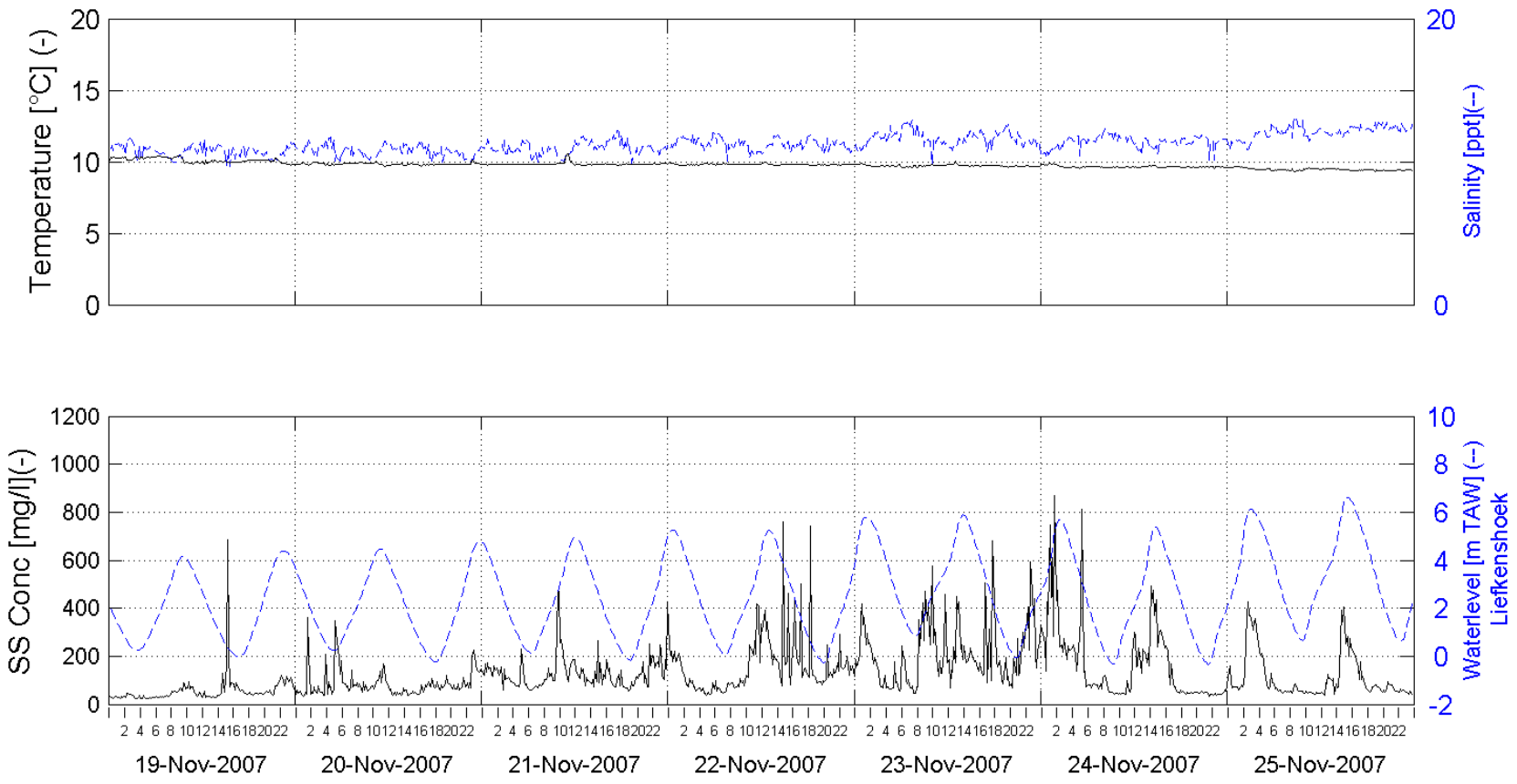
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 47 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

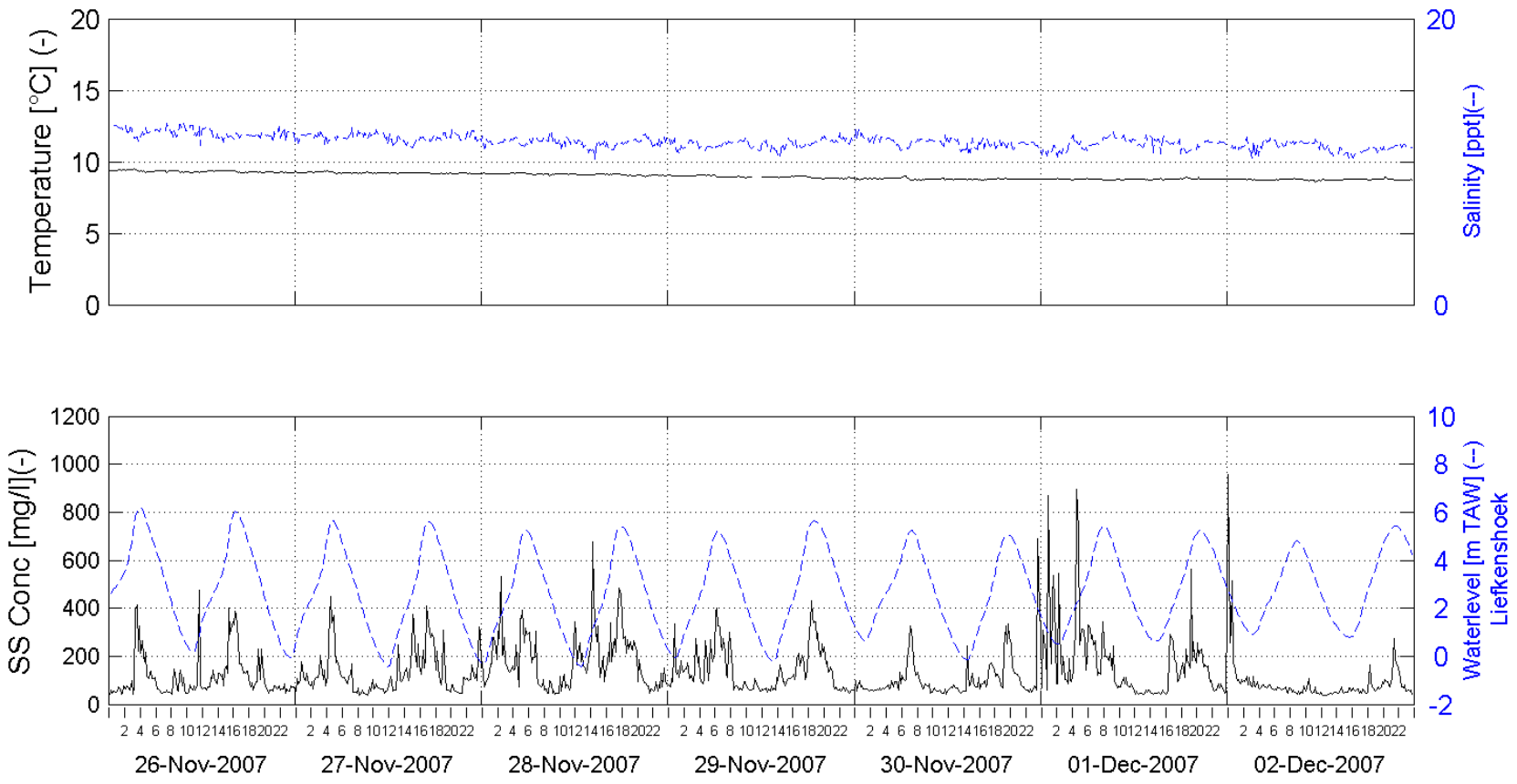
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 48 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

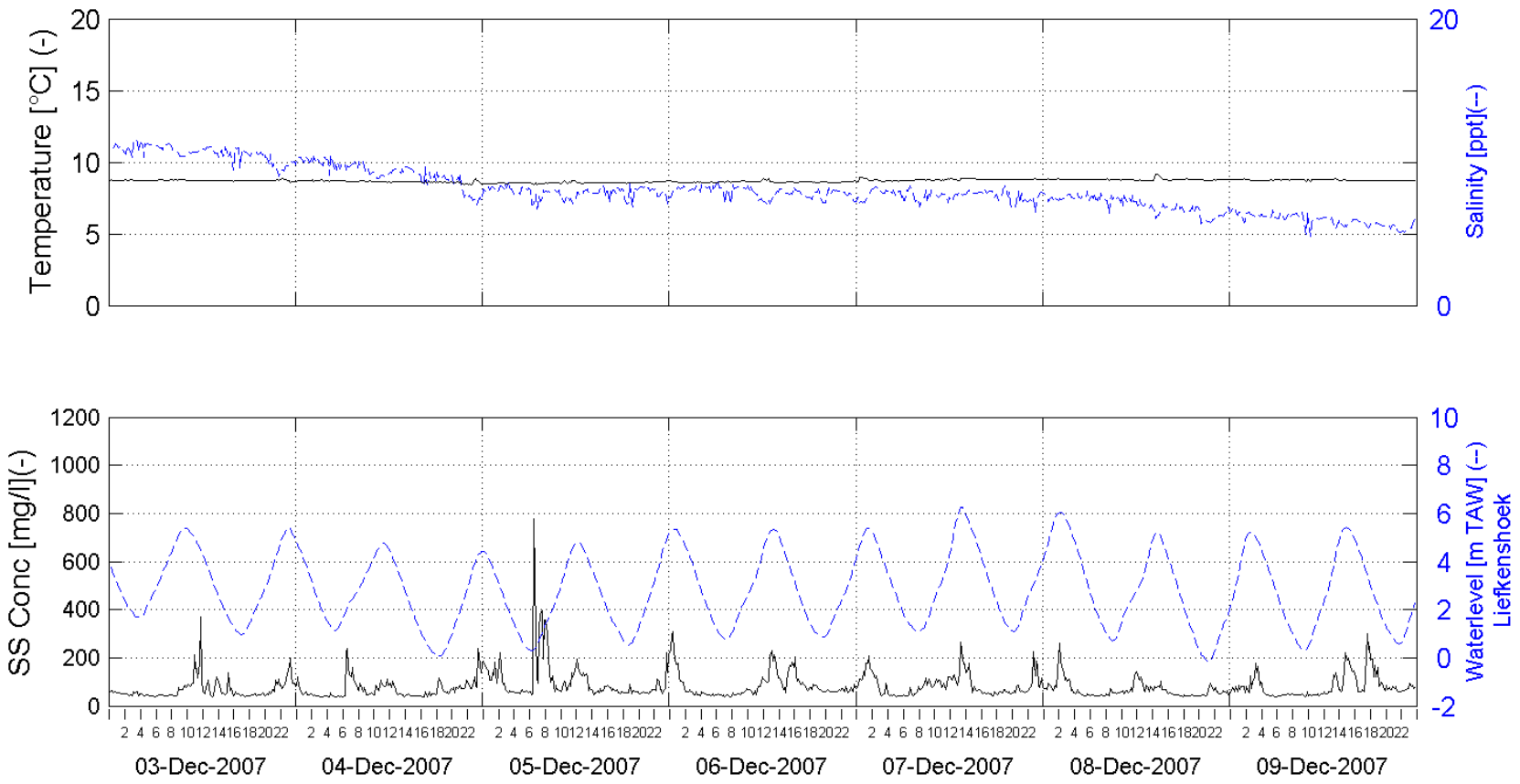
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 49 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

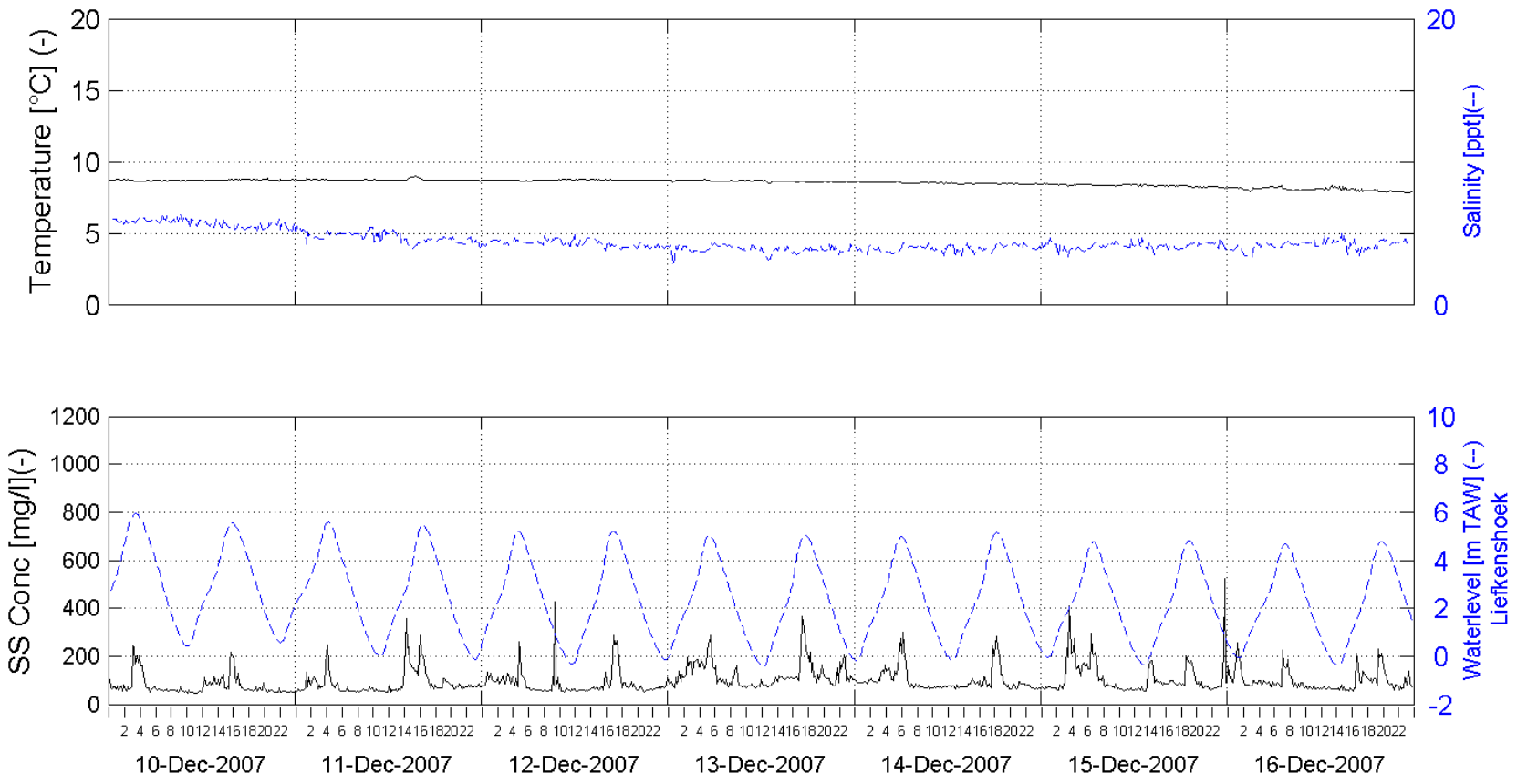
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 50 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

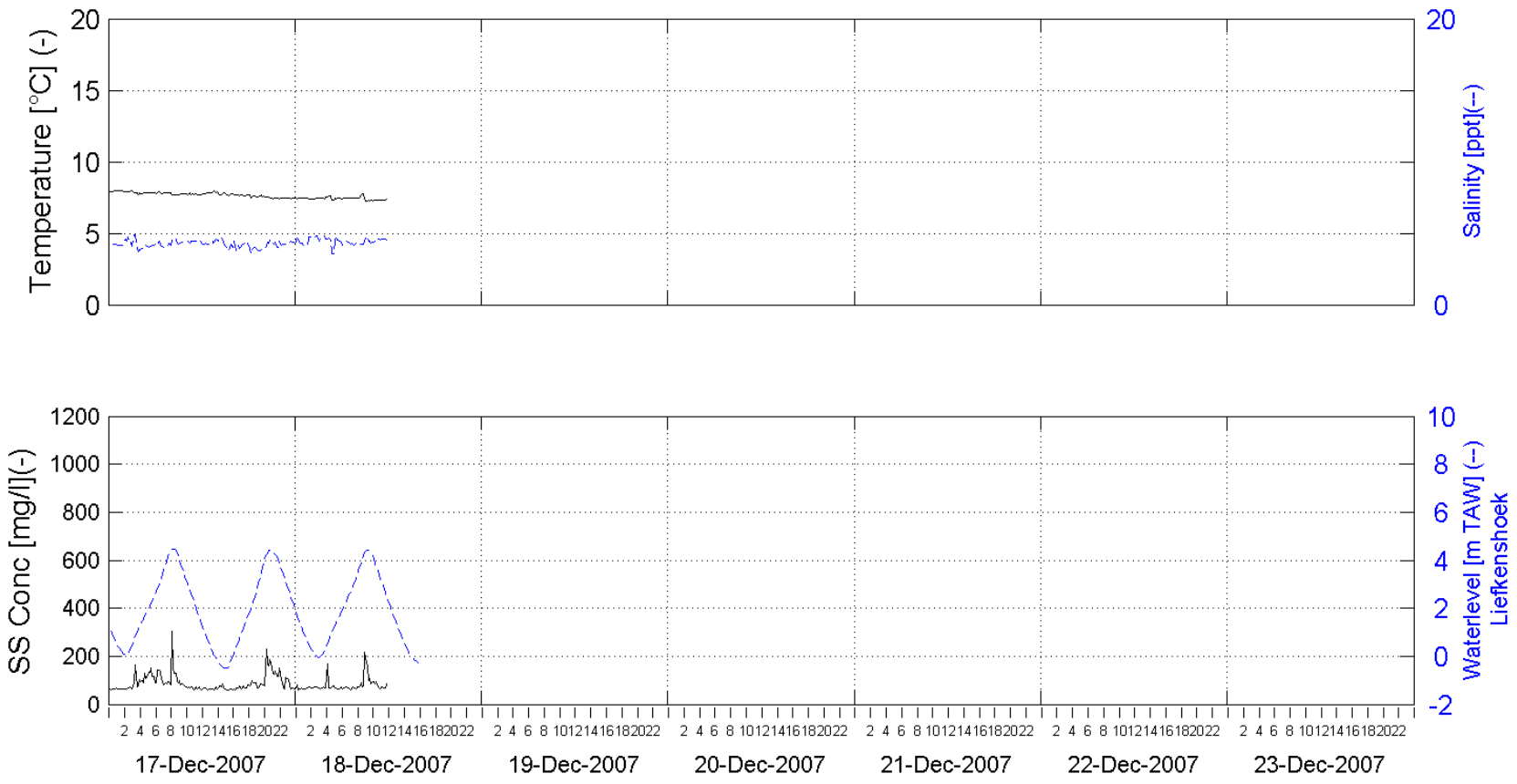
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 51 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE BOTTOM 5.2m above bottom (-11.8m TAW)

Processed by:

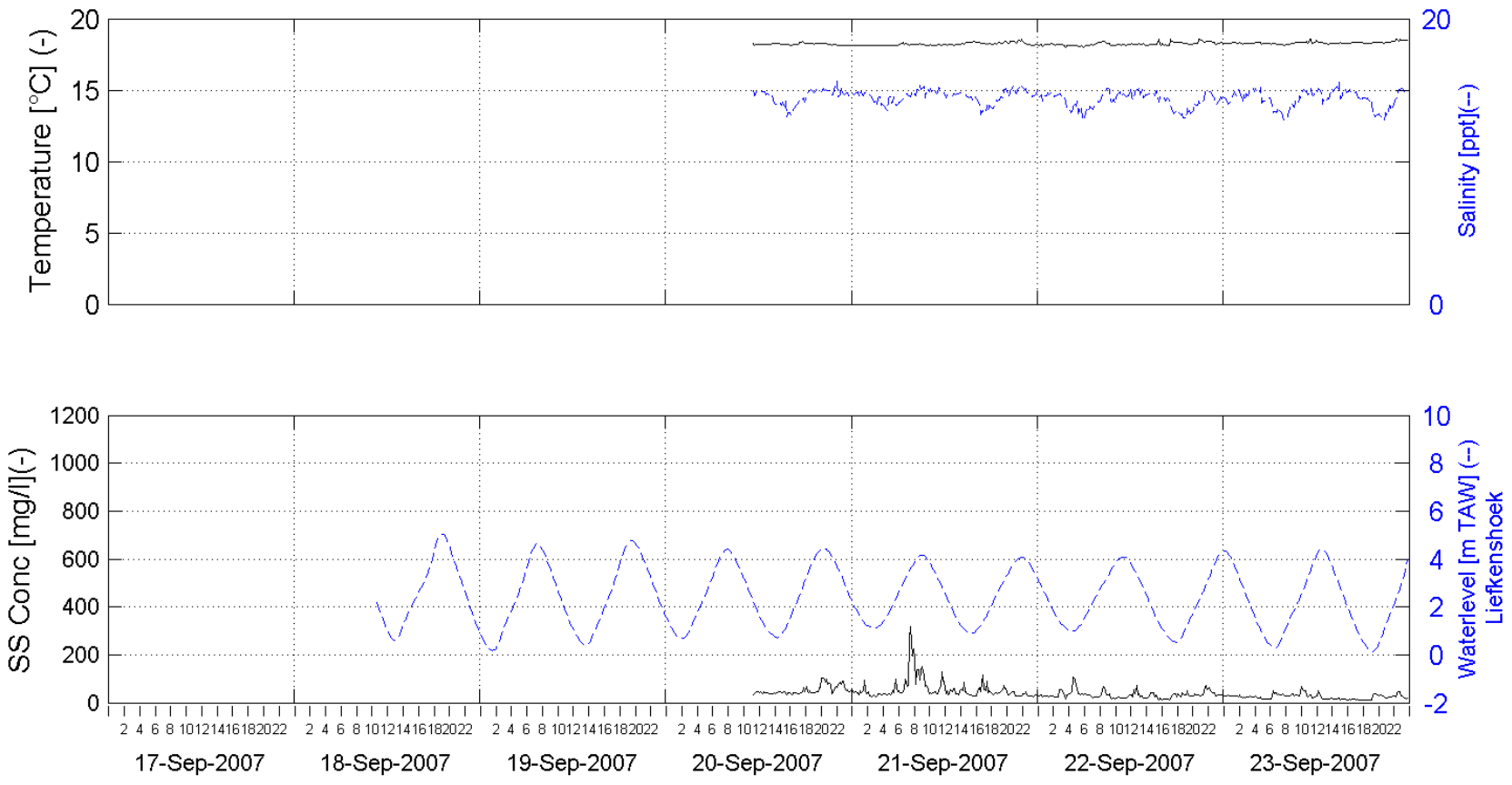
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 38 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

IMDC

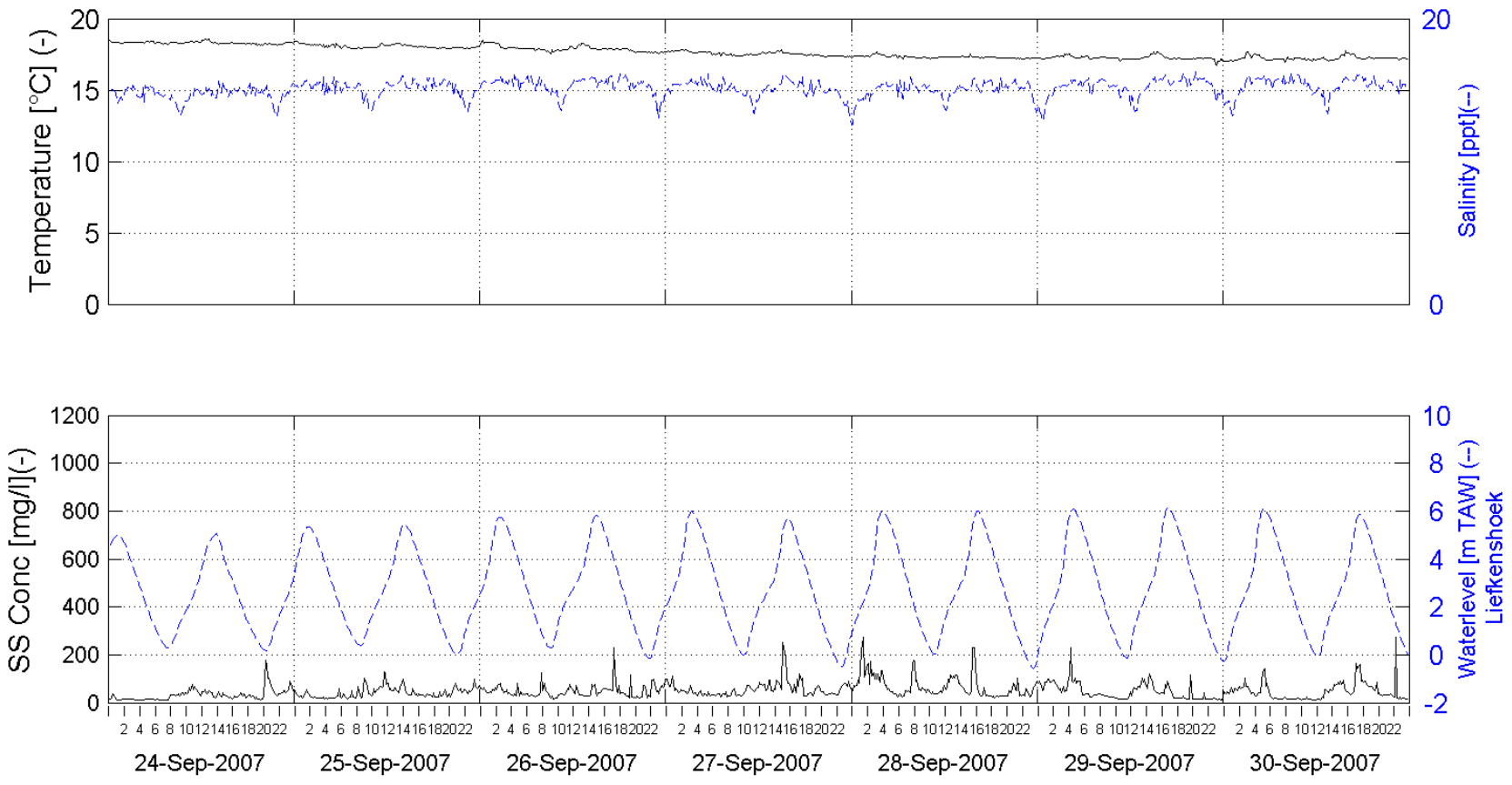
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 39 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

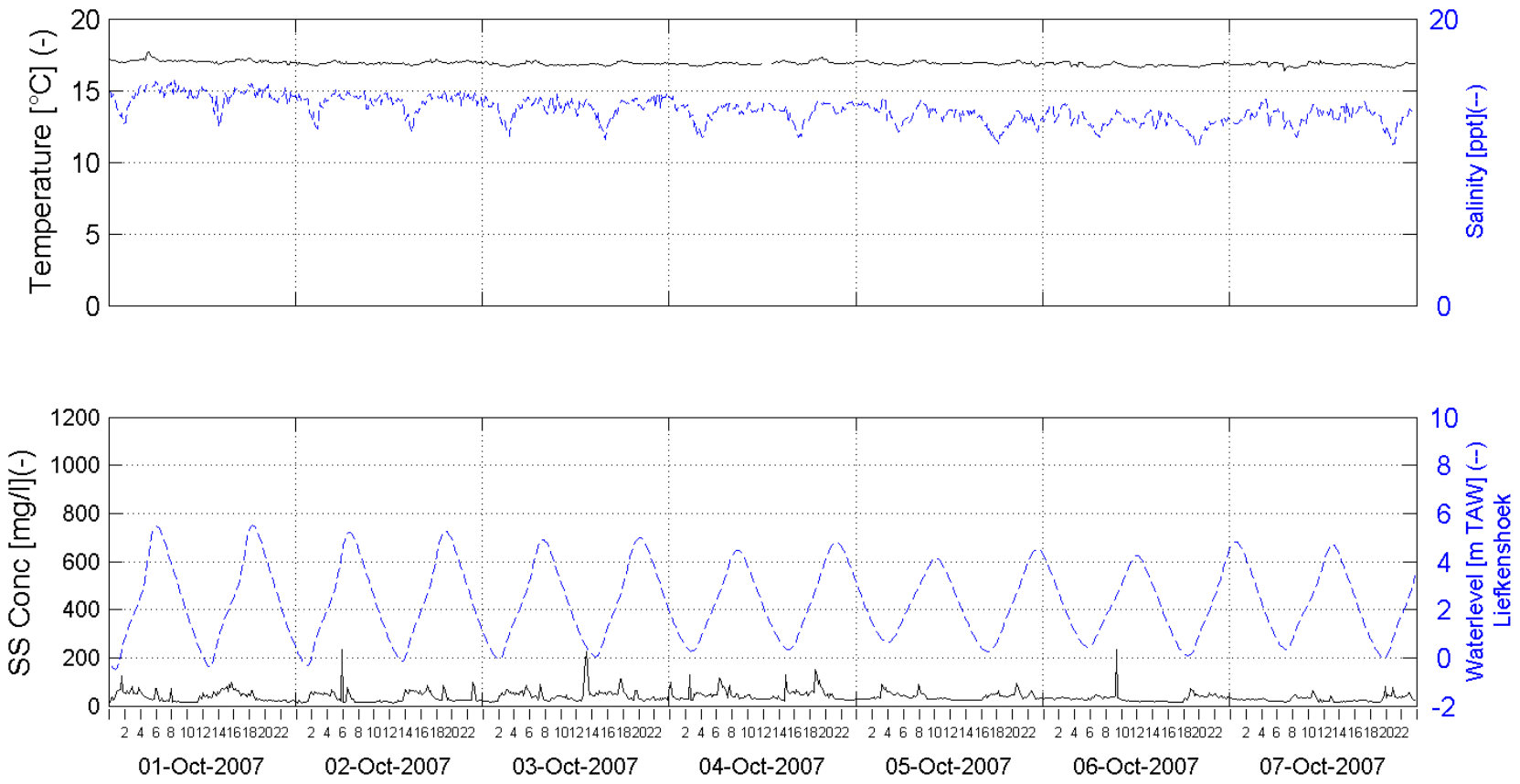
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 40 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

IMDC

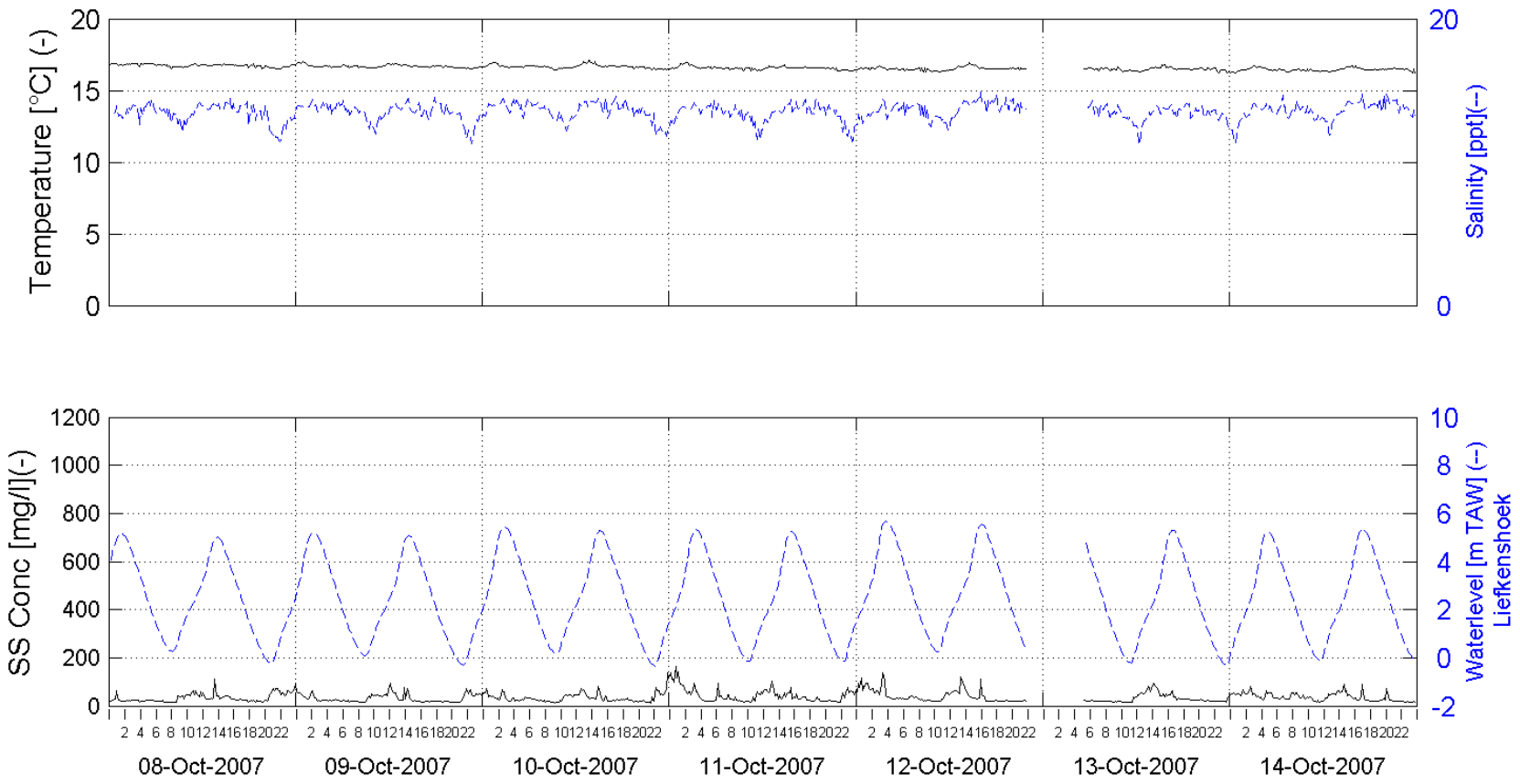
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 41 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

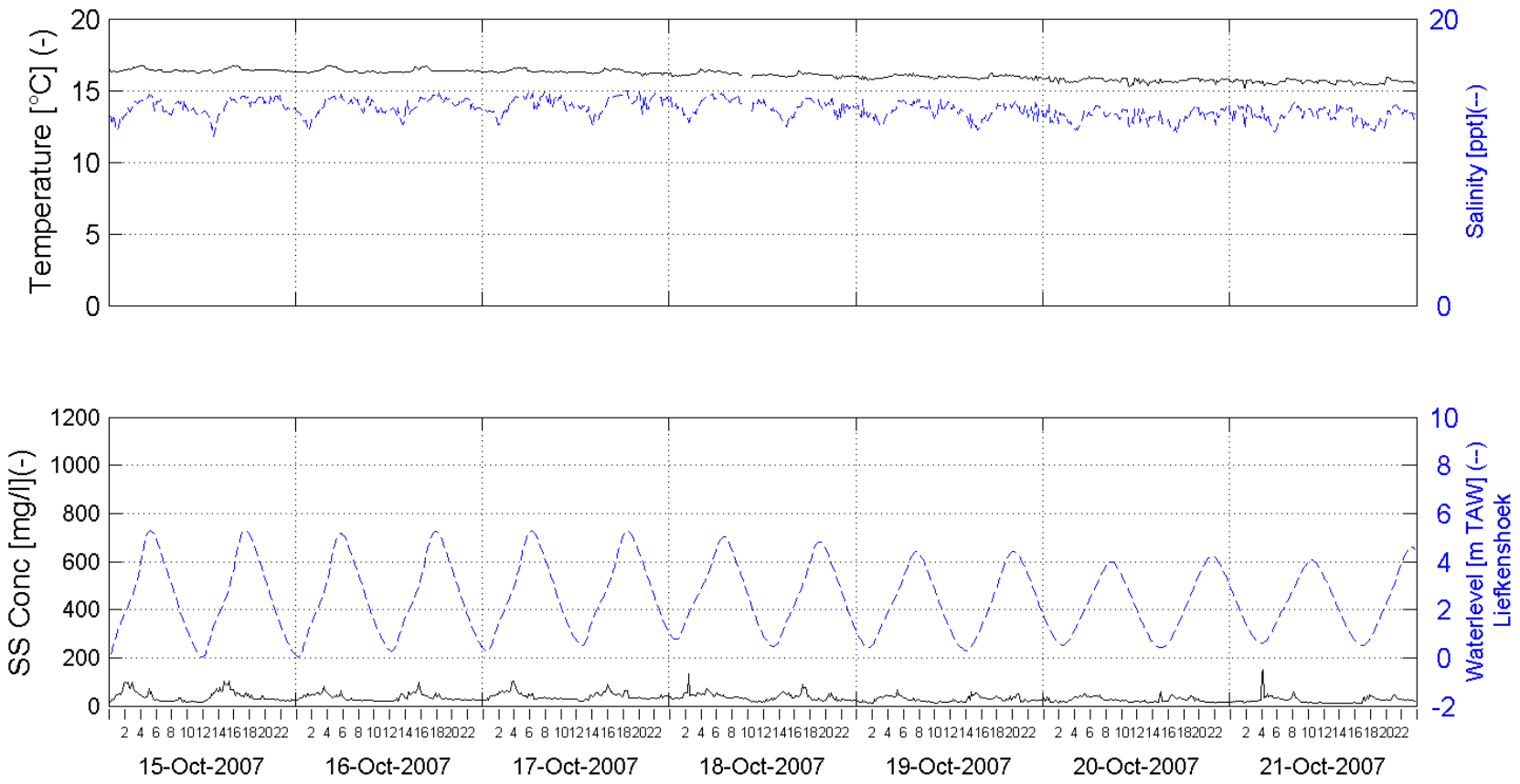
Processed by:

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 42 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

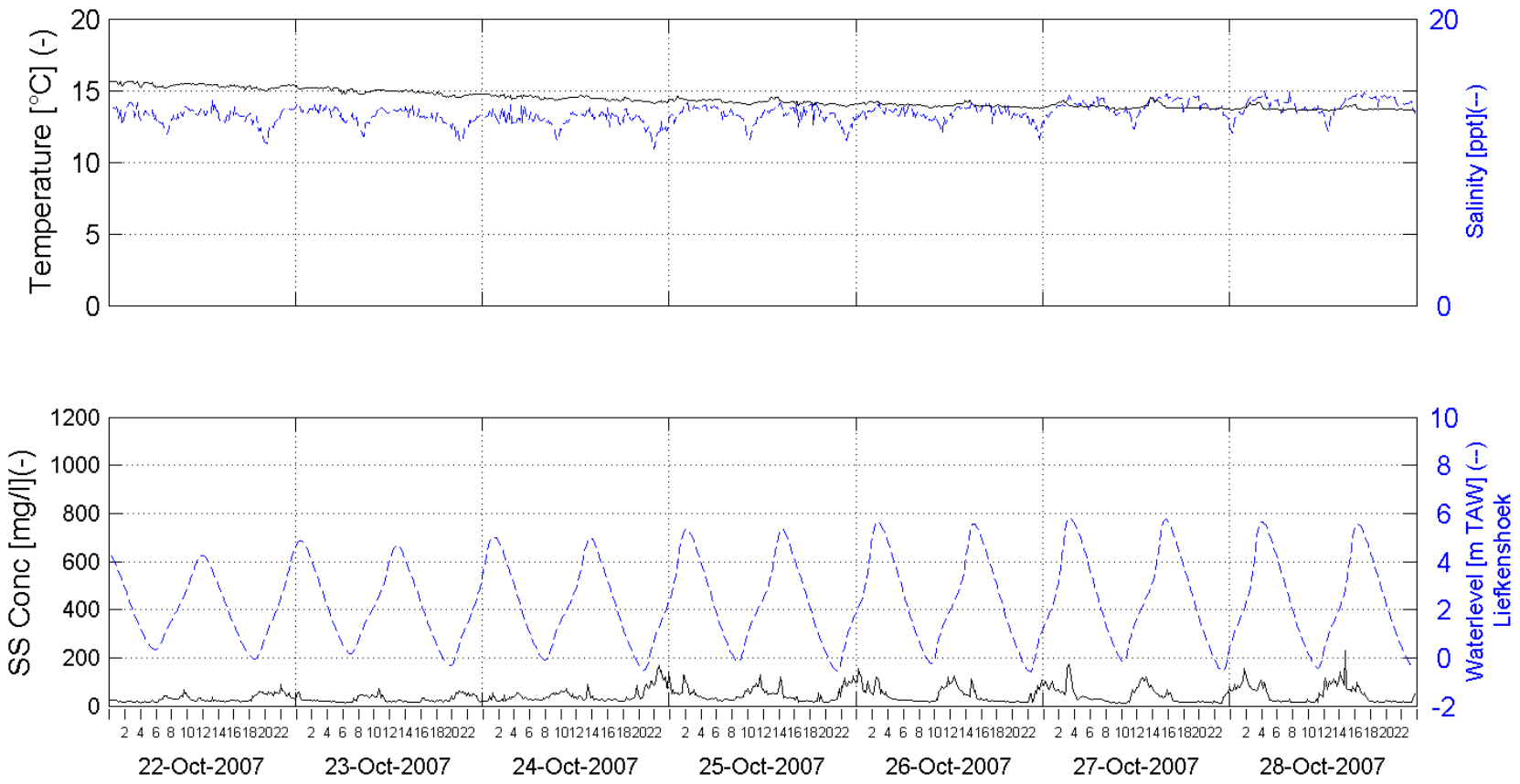
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 43 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

IMDC

In Association with:

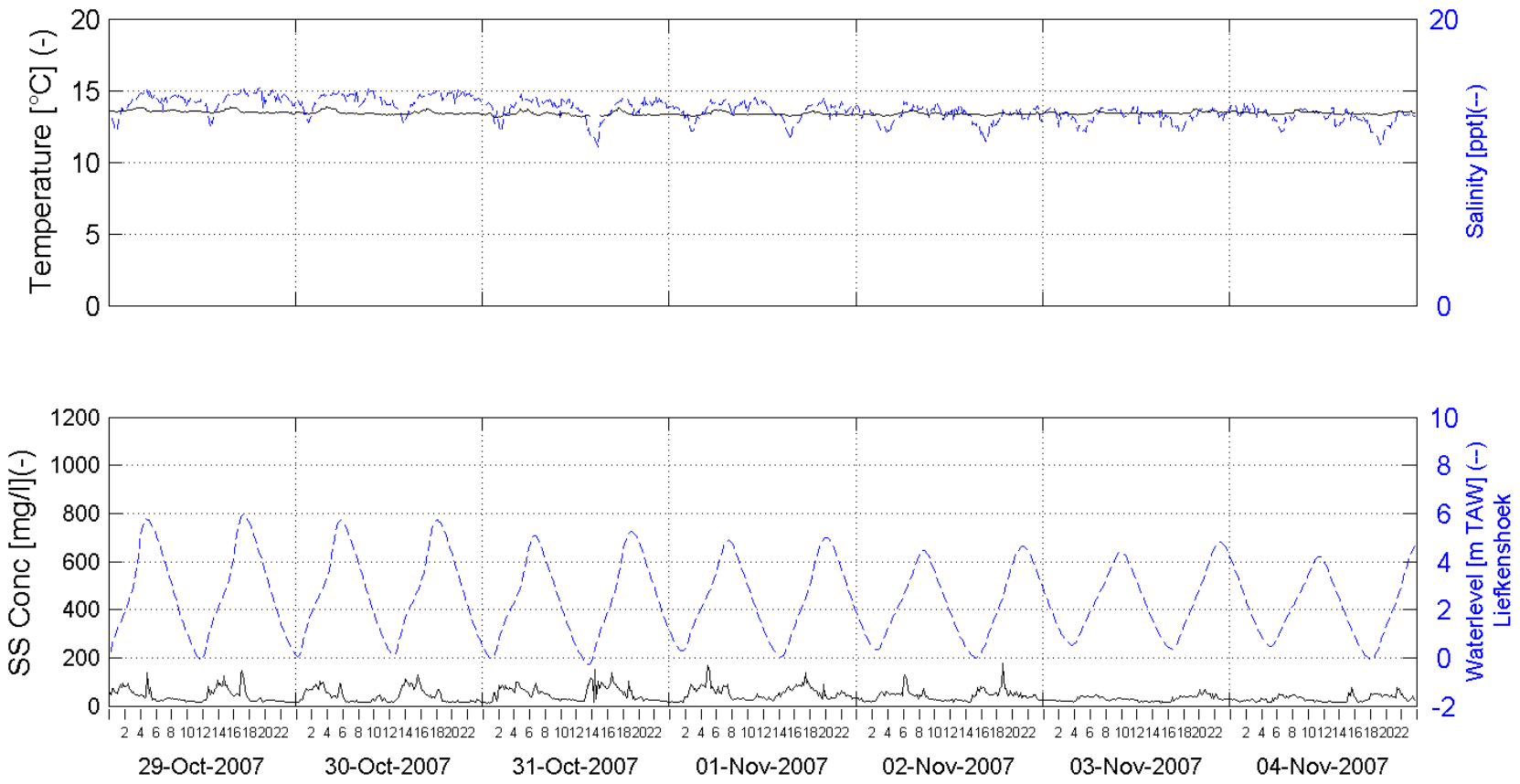
GEMS International

wl | delft hydraulics

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 44 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

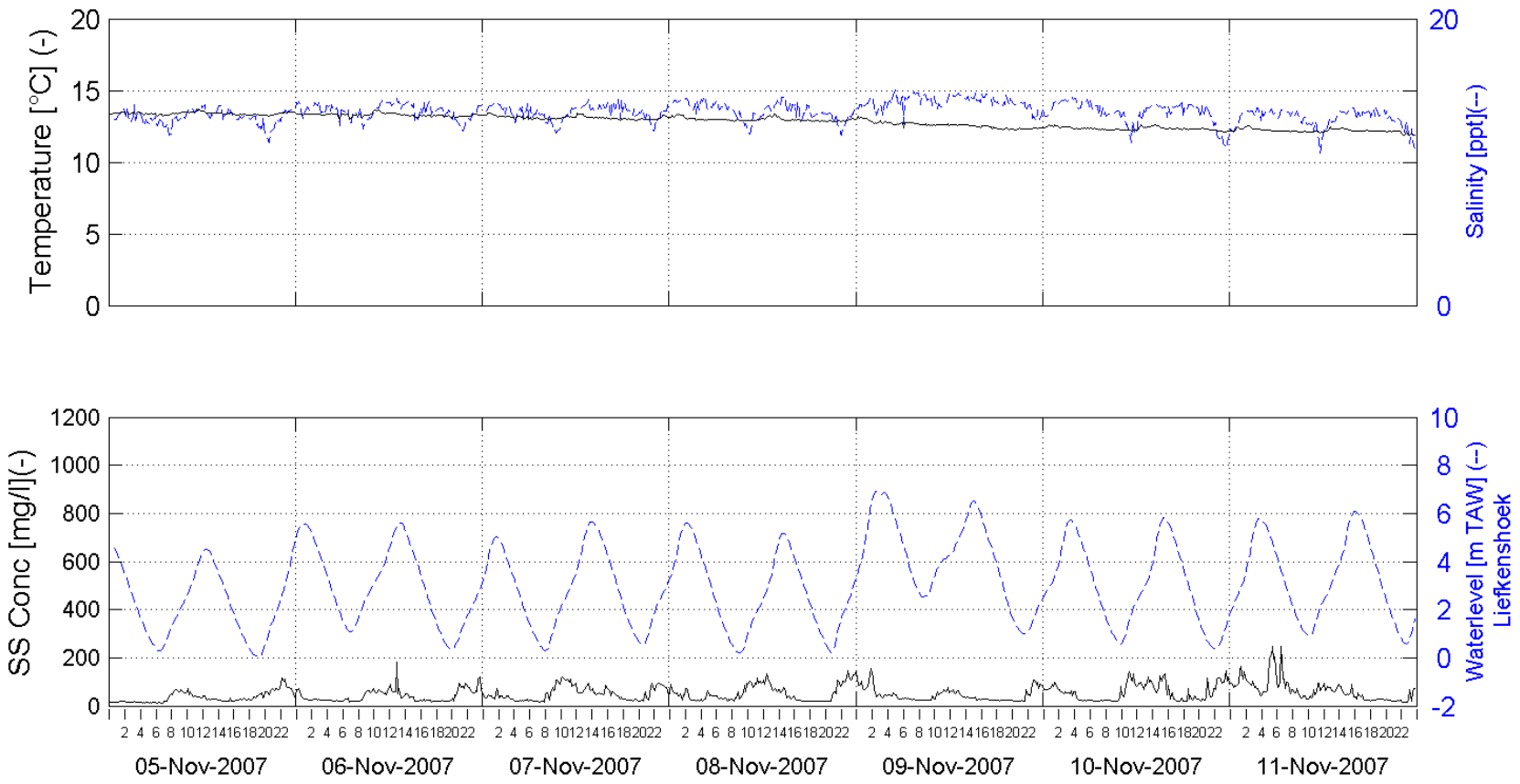
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 45 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

IMDC

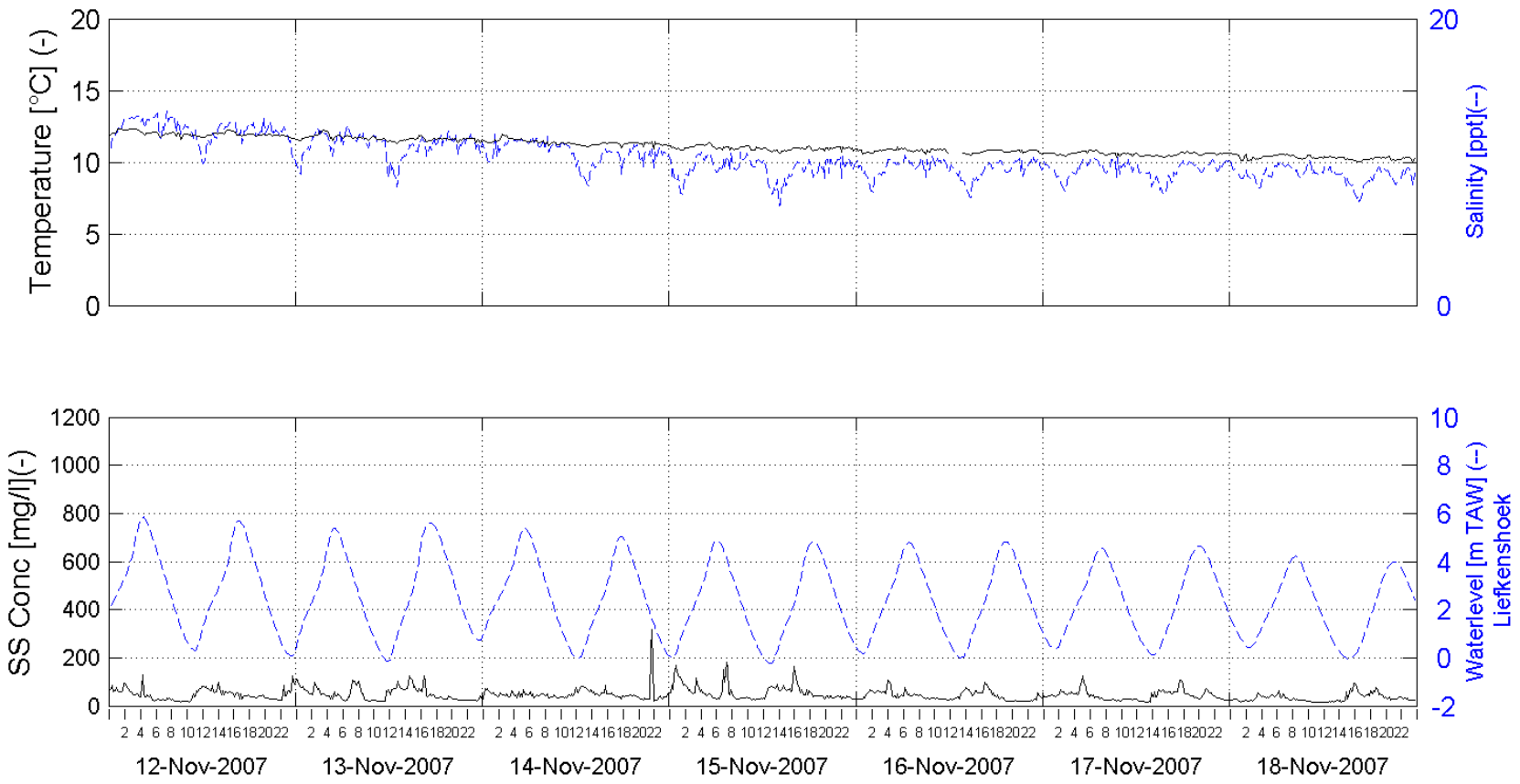
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 46 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

IMDC

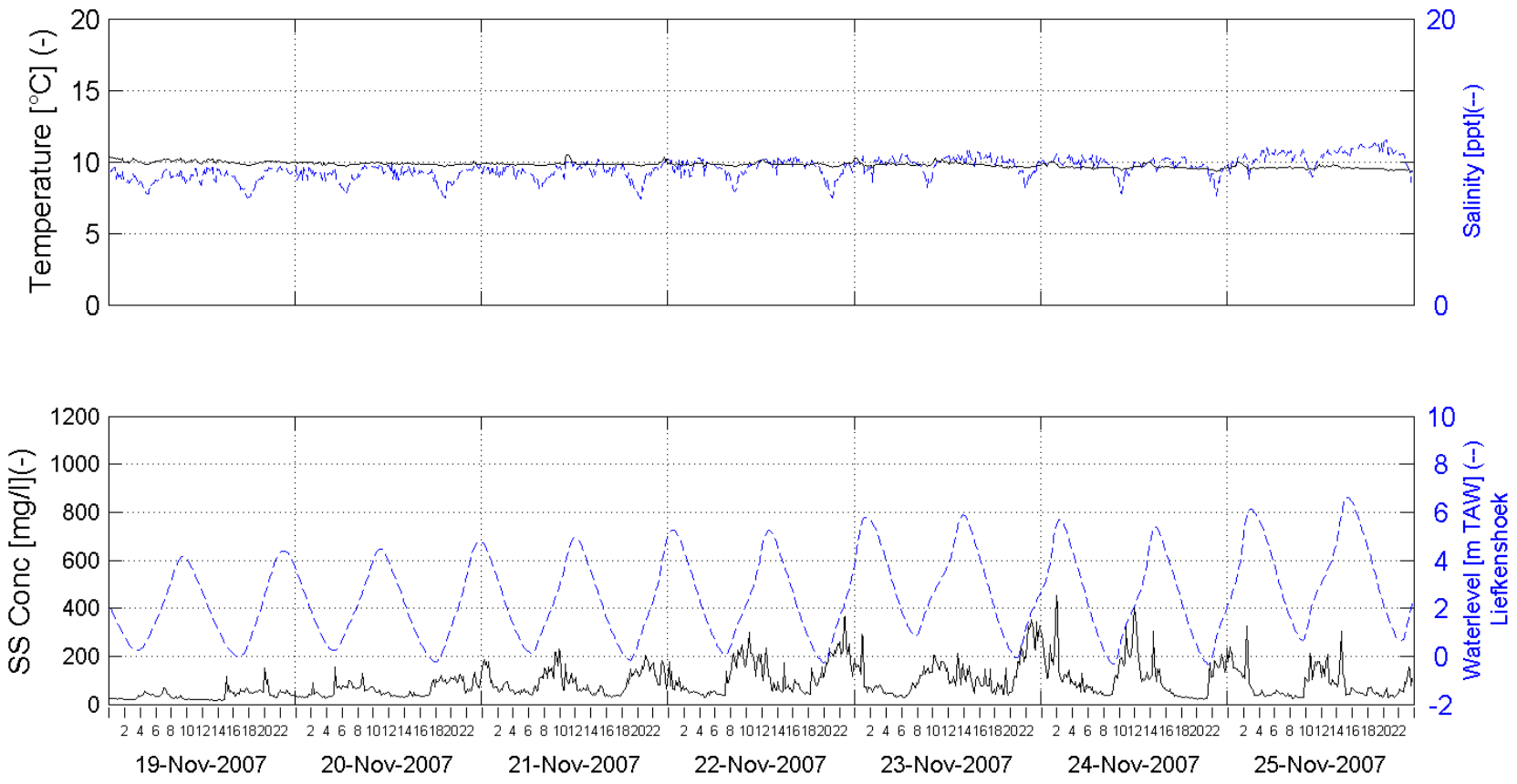
In Association with:

GEMS International

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 47 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

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Processed by:

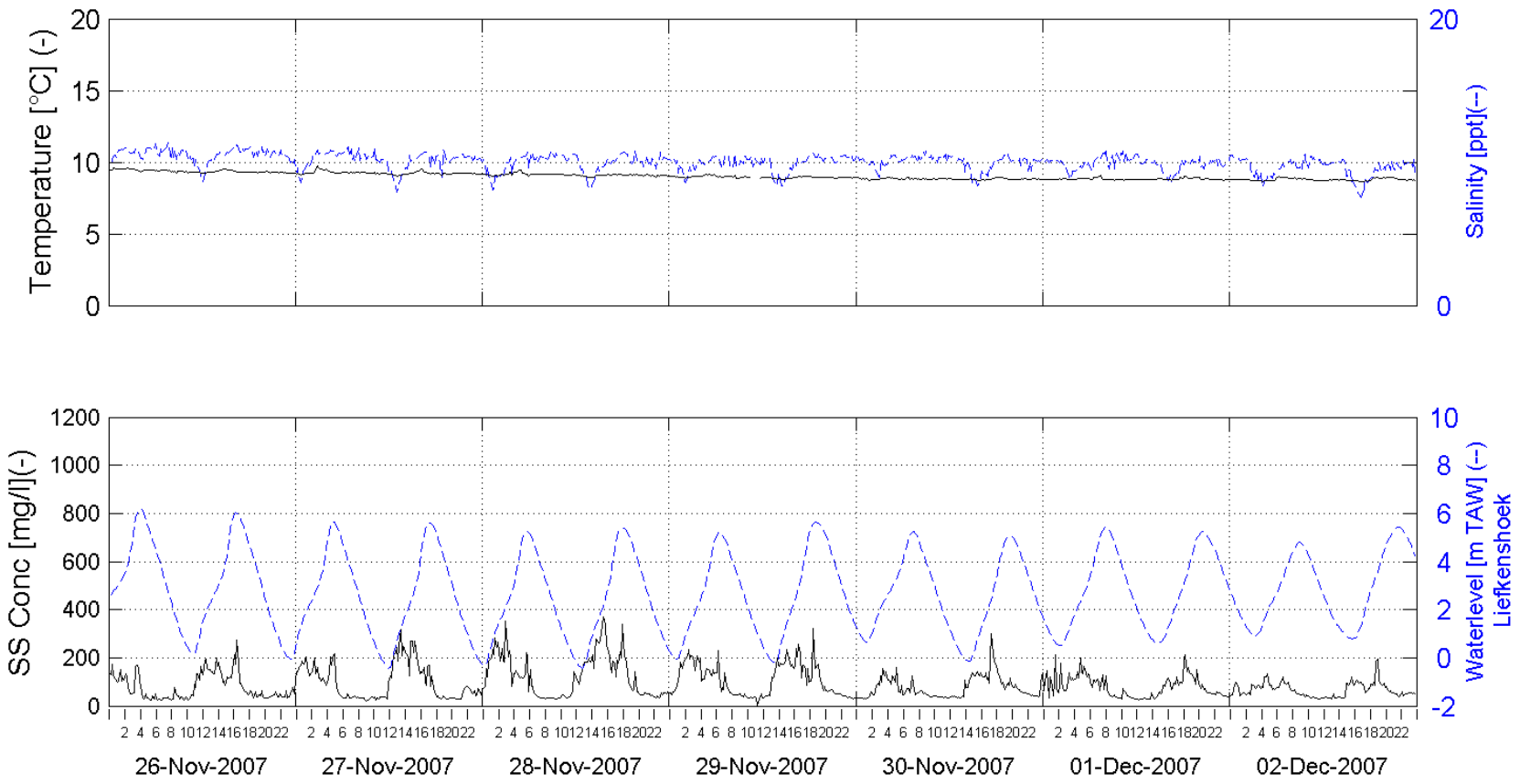
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 48 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

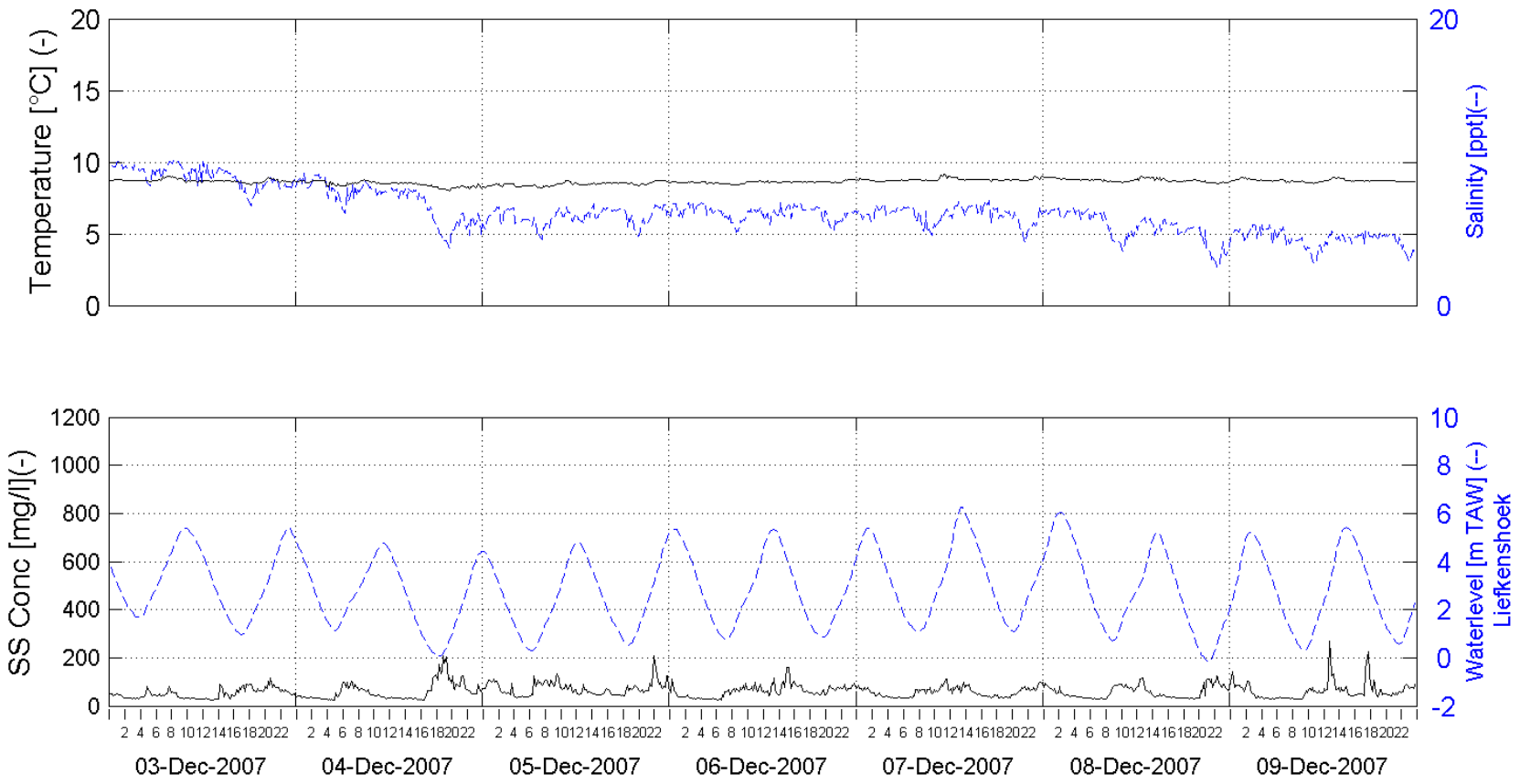
Processed by:

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 49 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

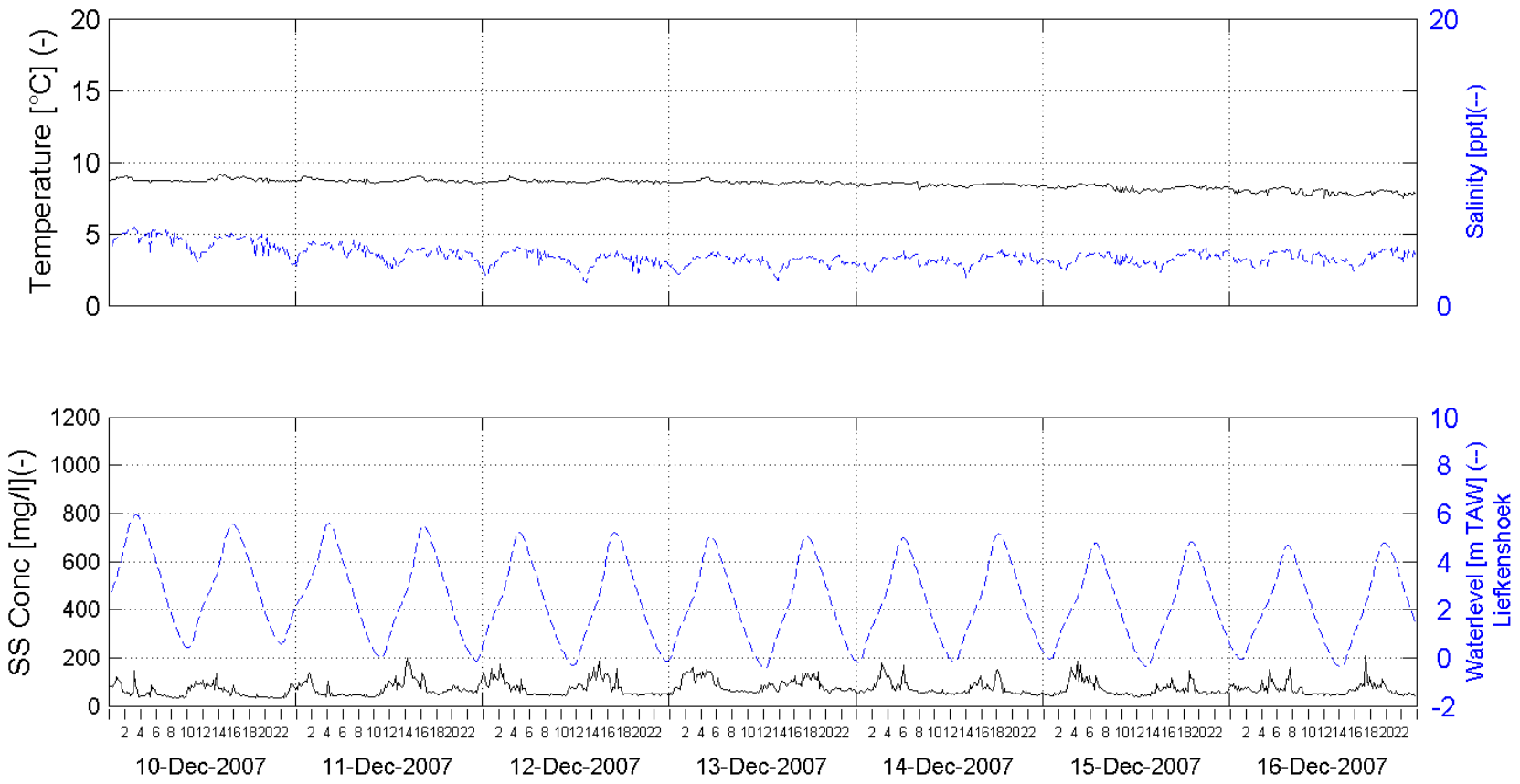
IMDC

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 50 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

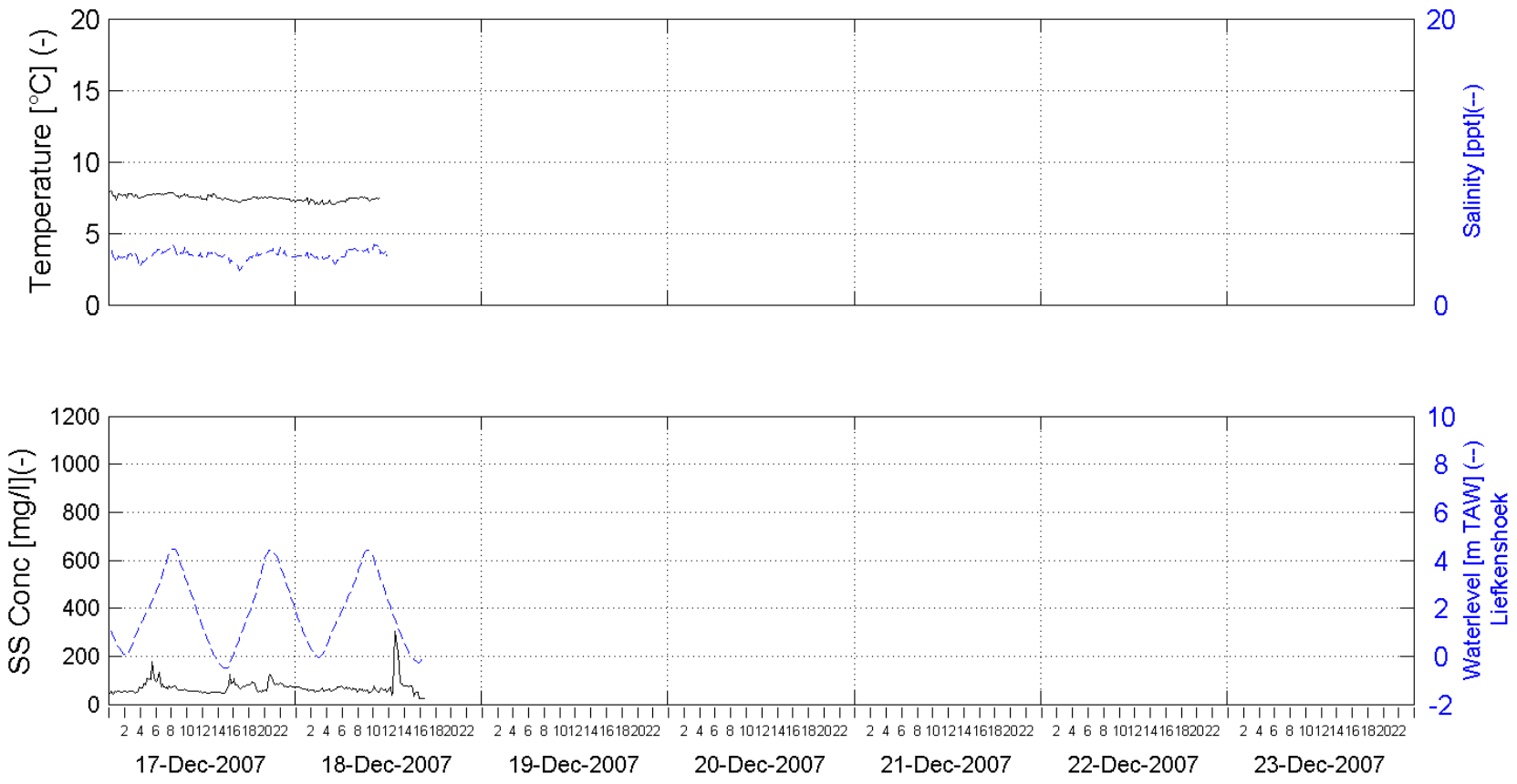
Processed by:

In Association with:

I/RA/11283/07.093/MSA

# 11283 - Long-term monitoring DGD - Autumn 2007

## Week 51 - 2007




Week series of Salinity, Temperature, SS Concentration and Tide

Location:

S-ENTRANCE TOP 14m above bottom (-3m TAW)

Processed by:

In Association with:

I/RA/11283/07.093/MSA

# APPENDIX C.

# WEEKSERIES, AVERAGE TIDE & TABLES

# ARGUS ASM – IV & ALTUS (MET TIME)

## C.1 CDW frame

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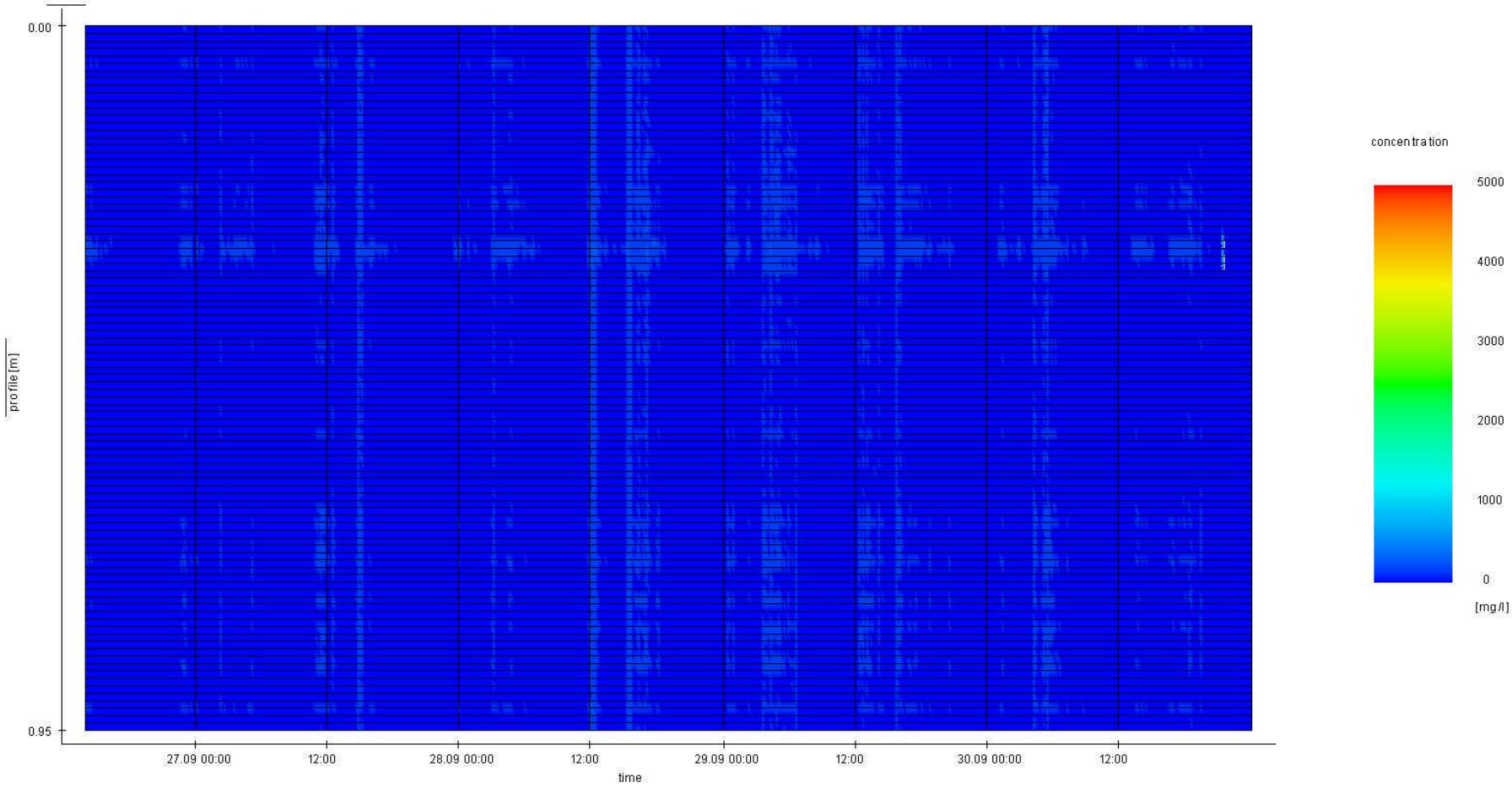
# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

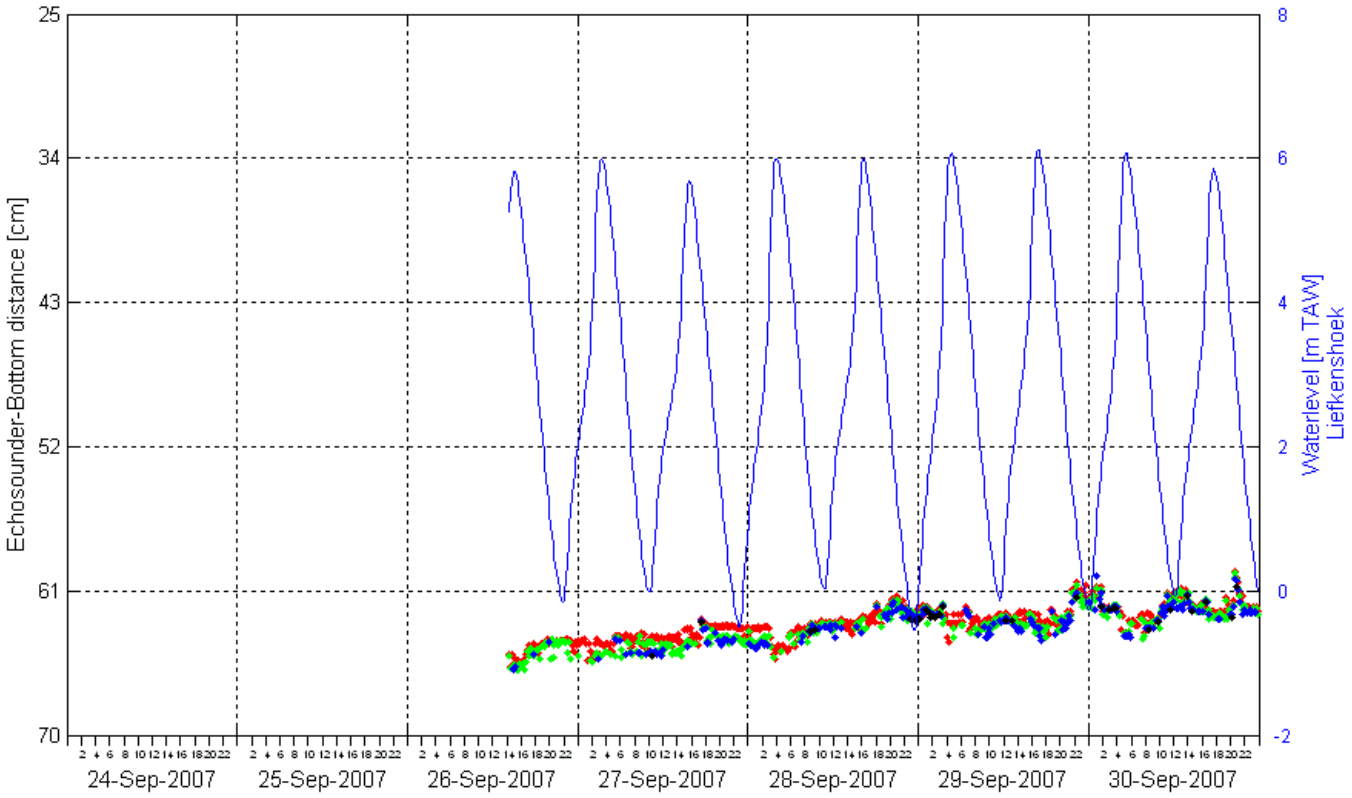
| Location: | Date: |
|---|---|
| Deurganckdok CDW | 26/09/2007 – 30/09/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

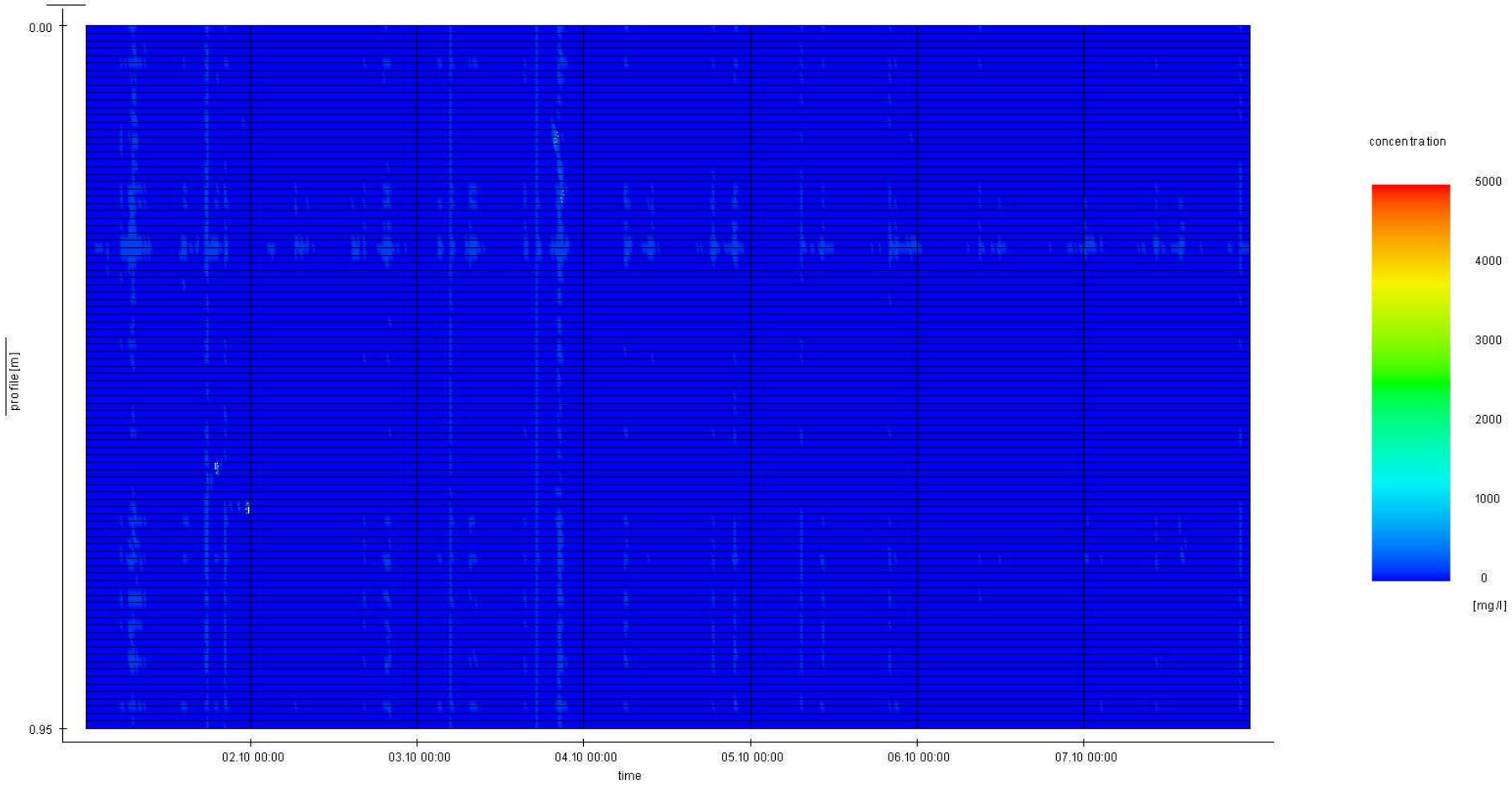
Date:
26/09/2007 – 30/09/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

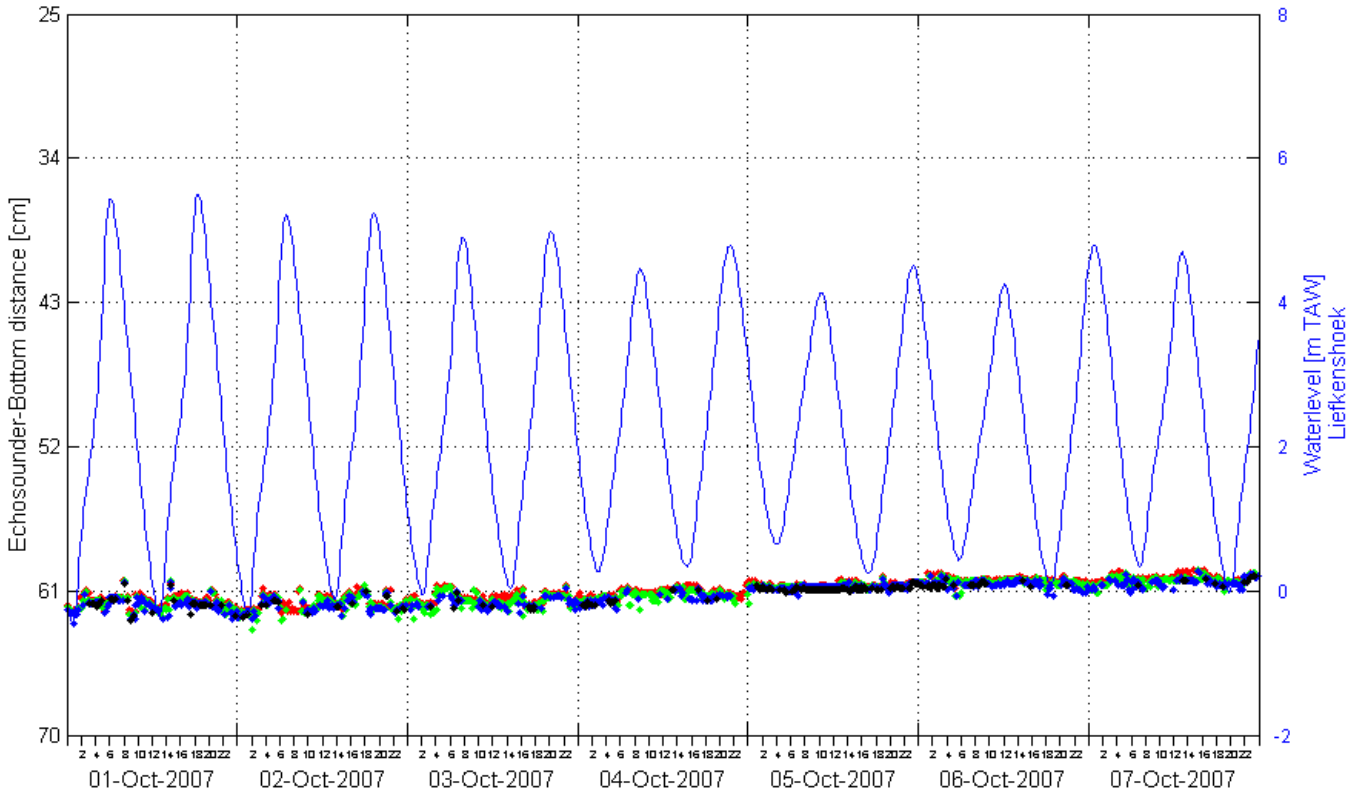
| Location: | Date: |
|---|---|
| Deurganckdok CDW | 01/10/2007 – 07/10/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

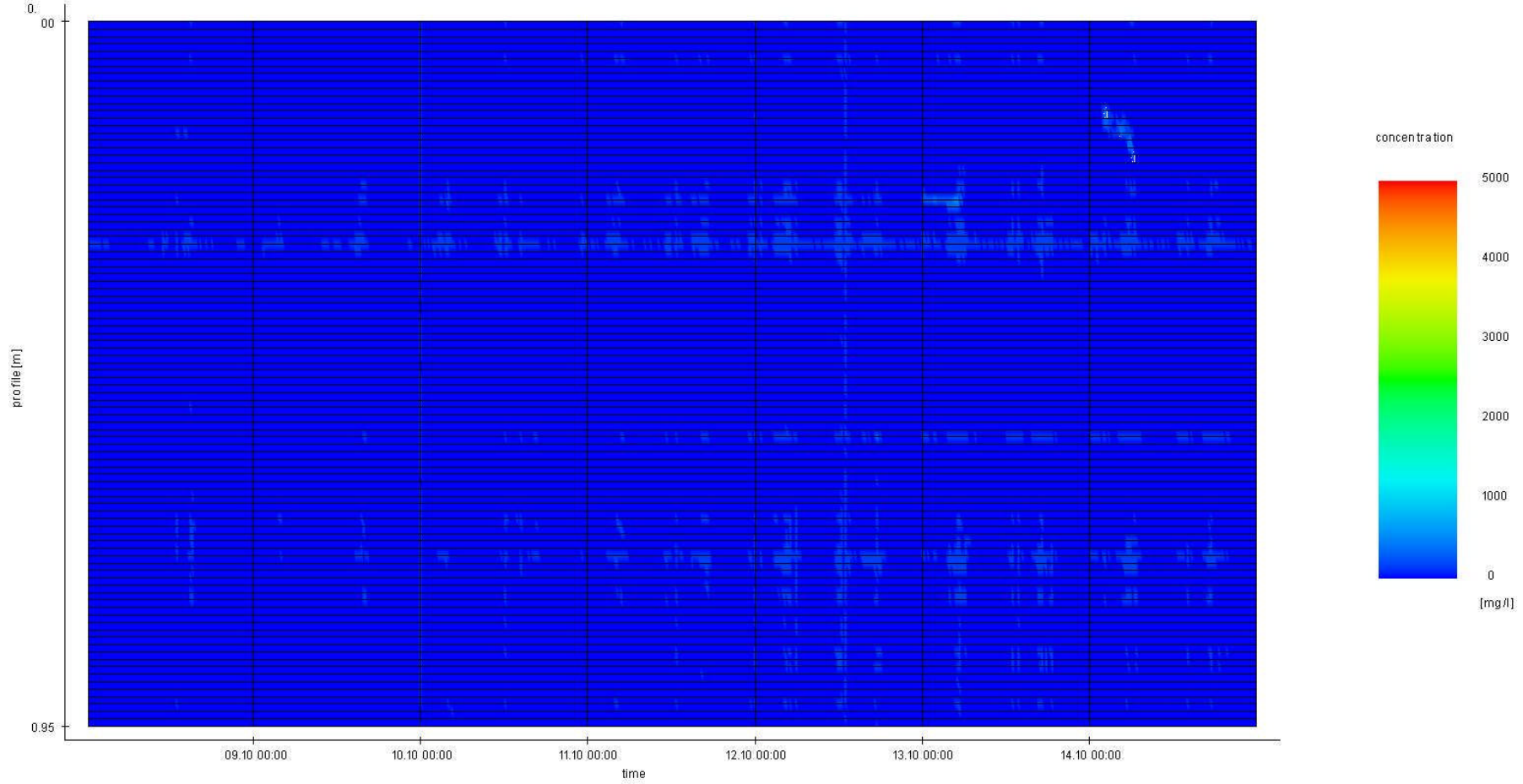
Date:
01/10/2007 – 07/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

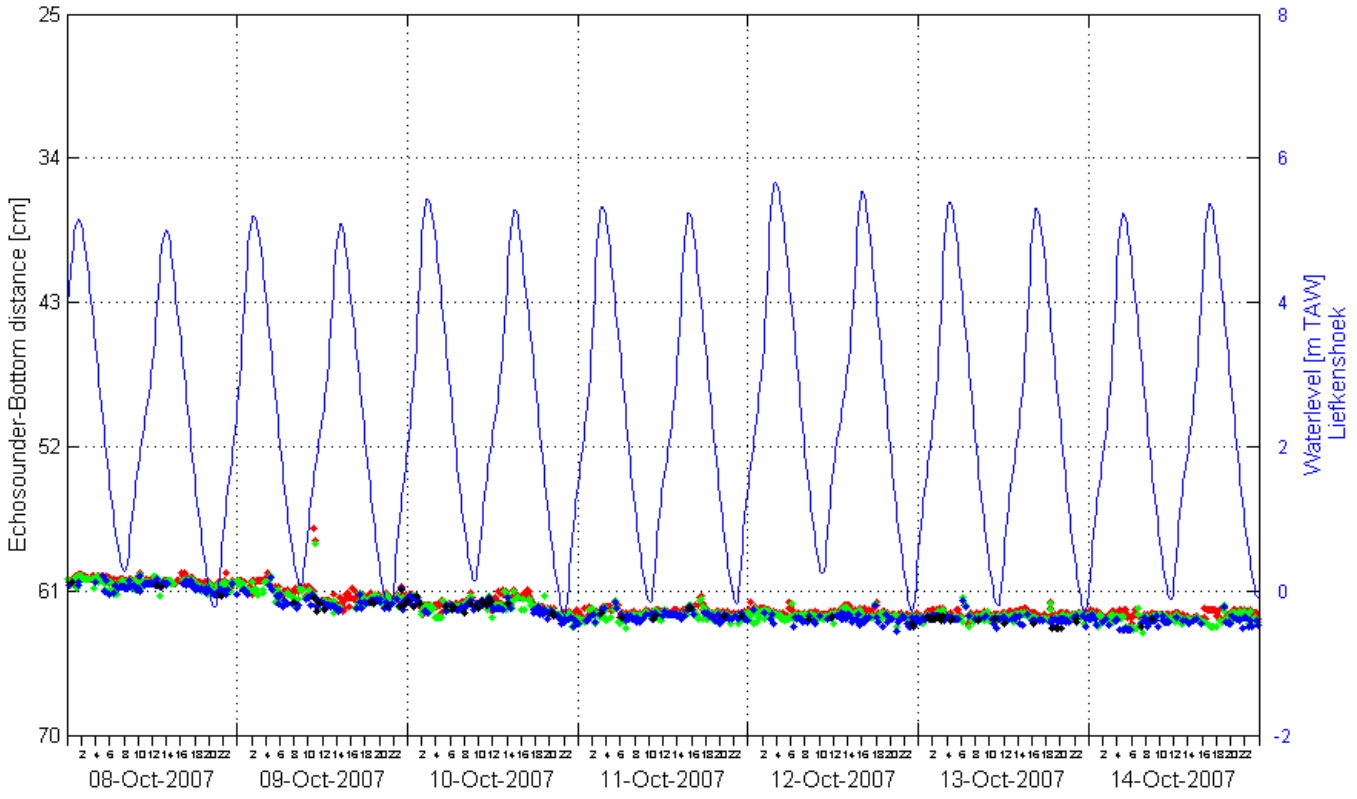
| Location: | Date: |
|---|---|
| Deurganckdok CDW | 08/10/2007 – 14/10/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

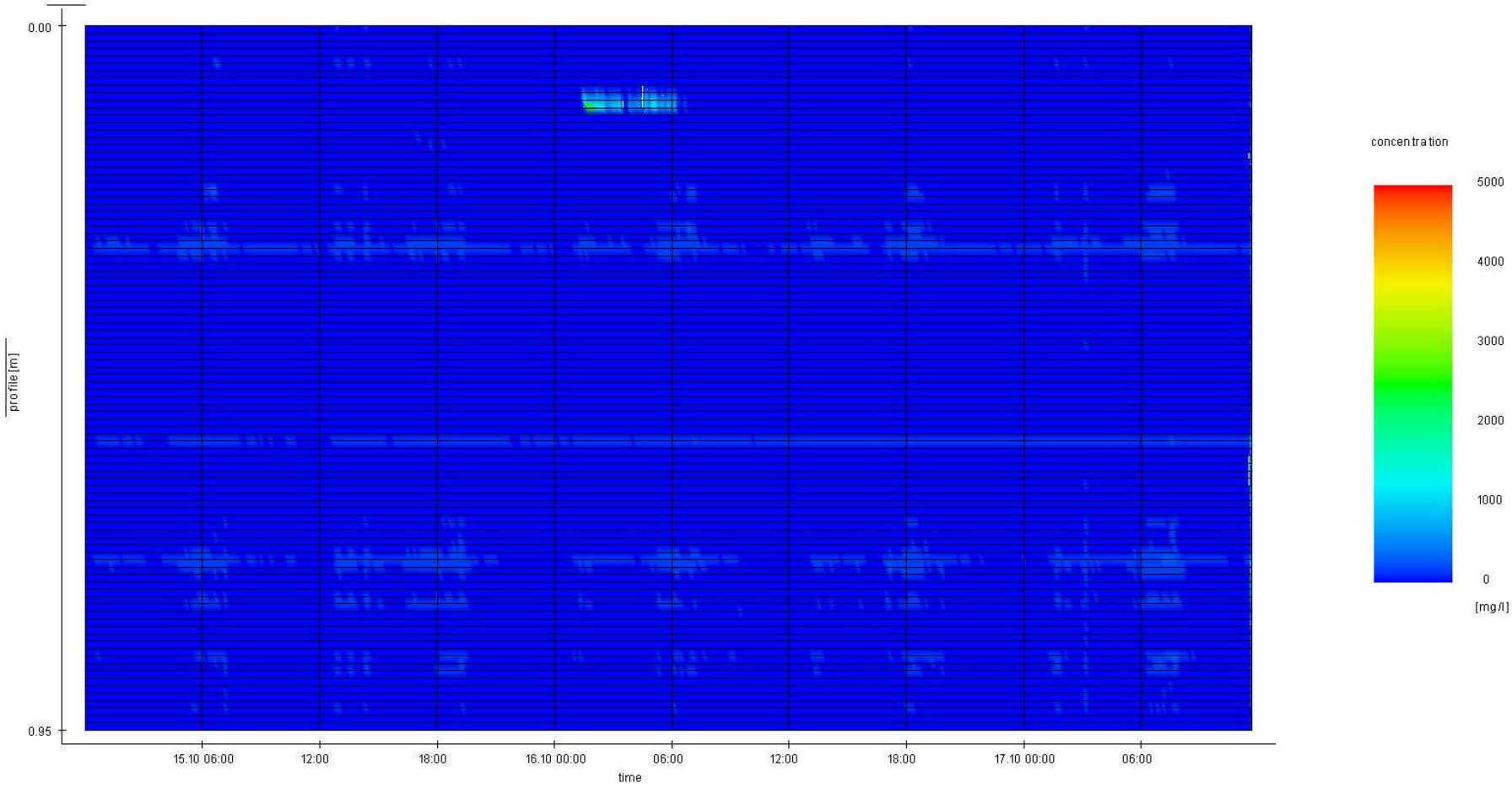
Date:
08/10/2007 – 14/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

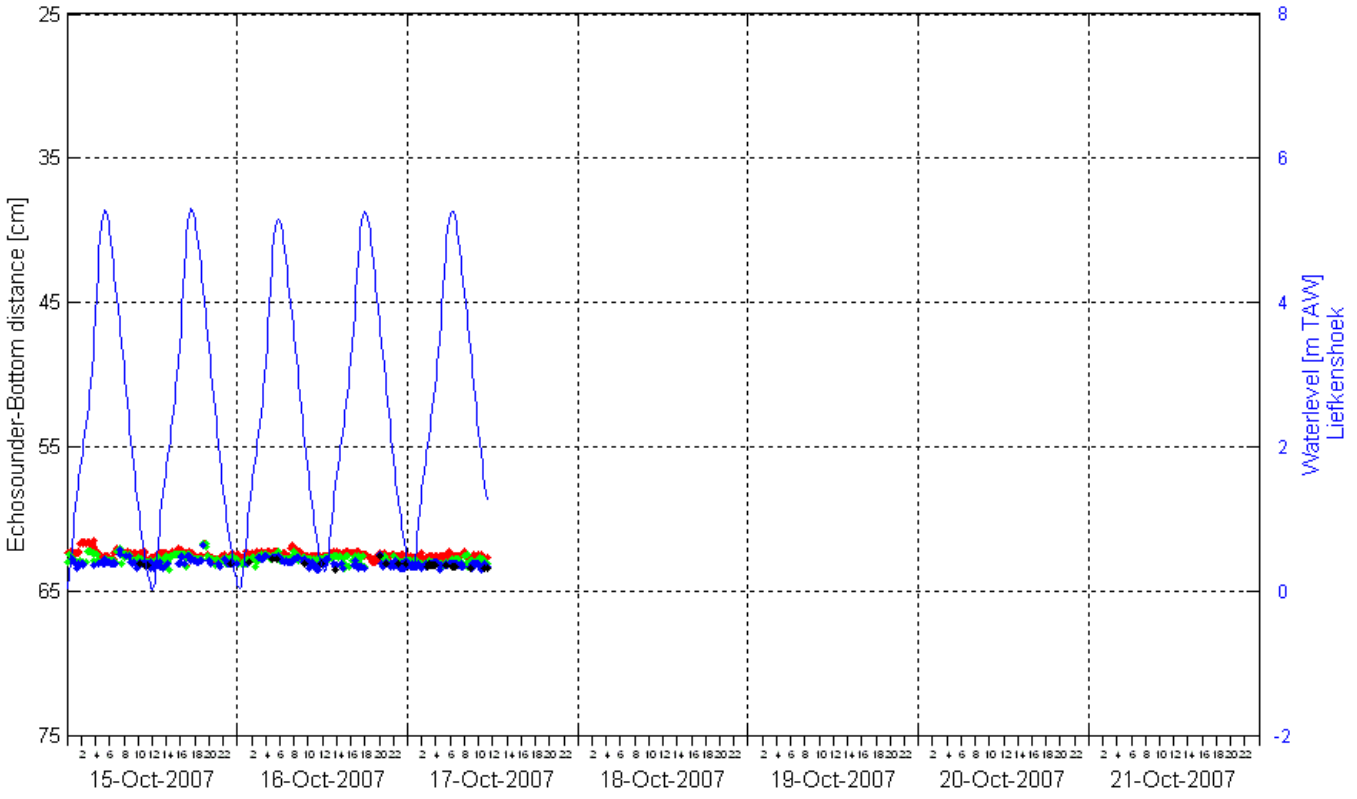
| Location: | Date: |
|---|---|
| Deurganckdok CDW | 15/10/2007 – 17/10/2007 |

*Data processed by:* IMDC

*In association with:* wl | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

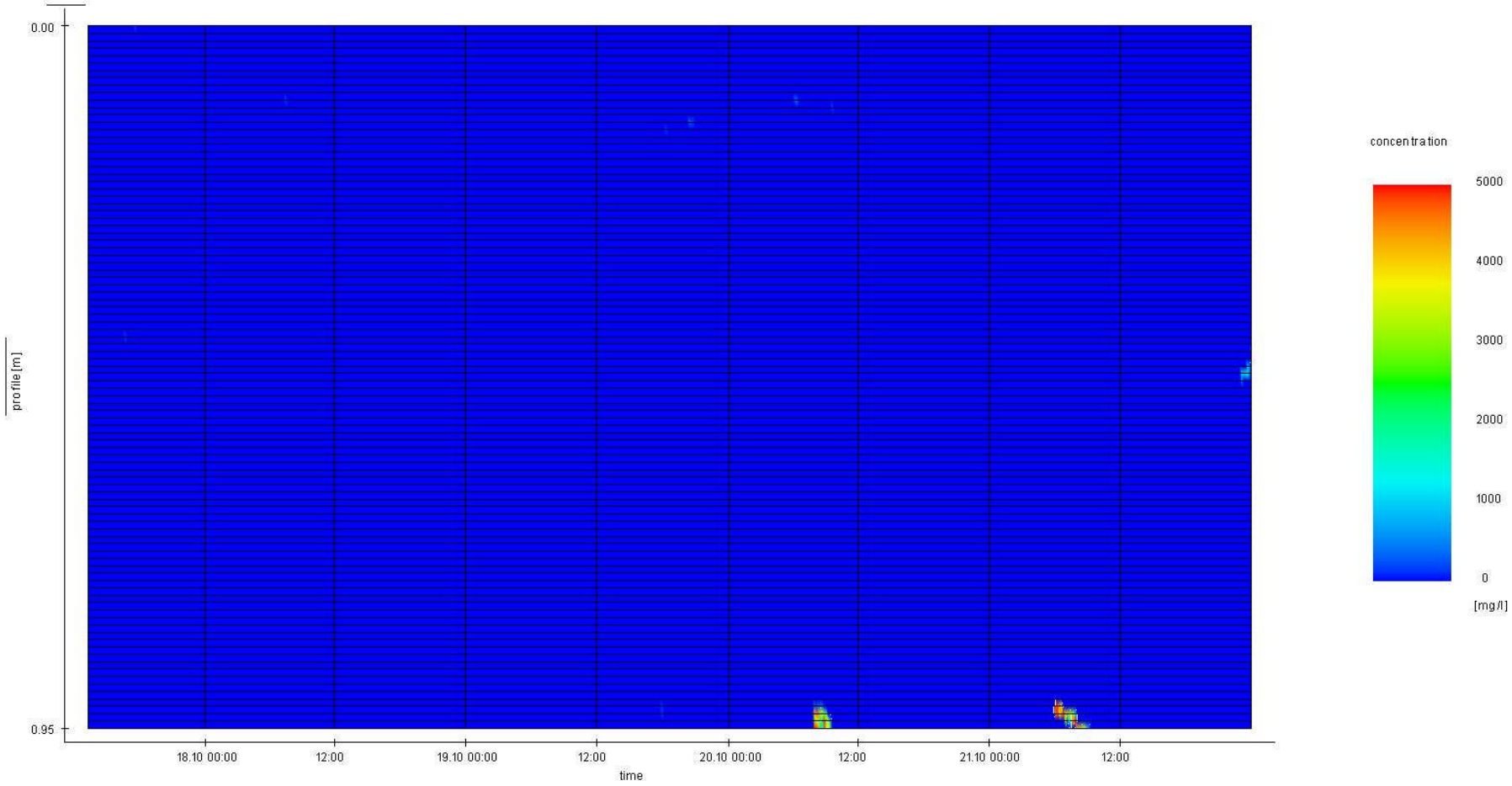
Date:
15/10/2007 – 17/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

Location:
Deurganckdok CDW

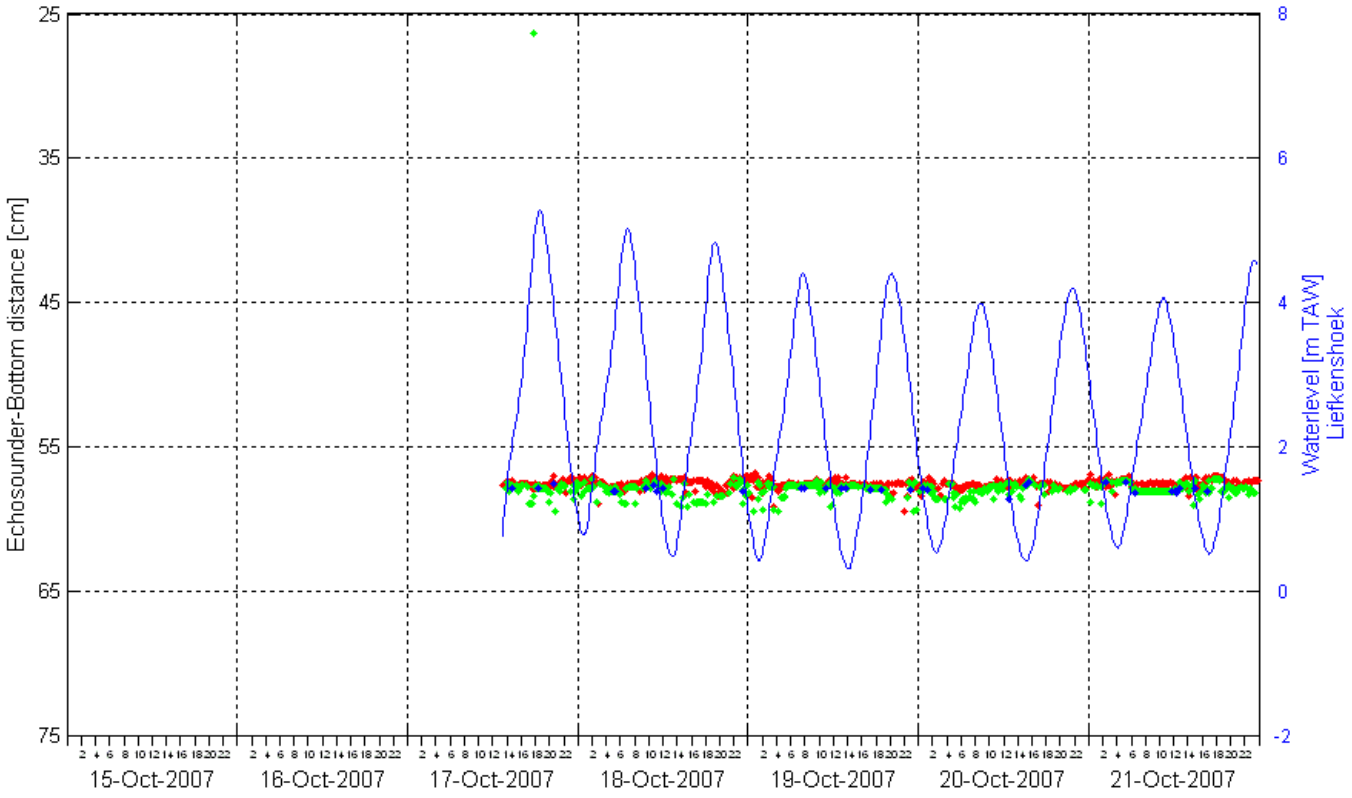
Date:
17/10/2007 – 21/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

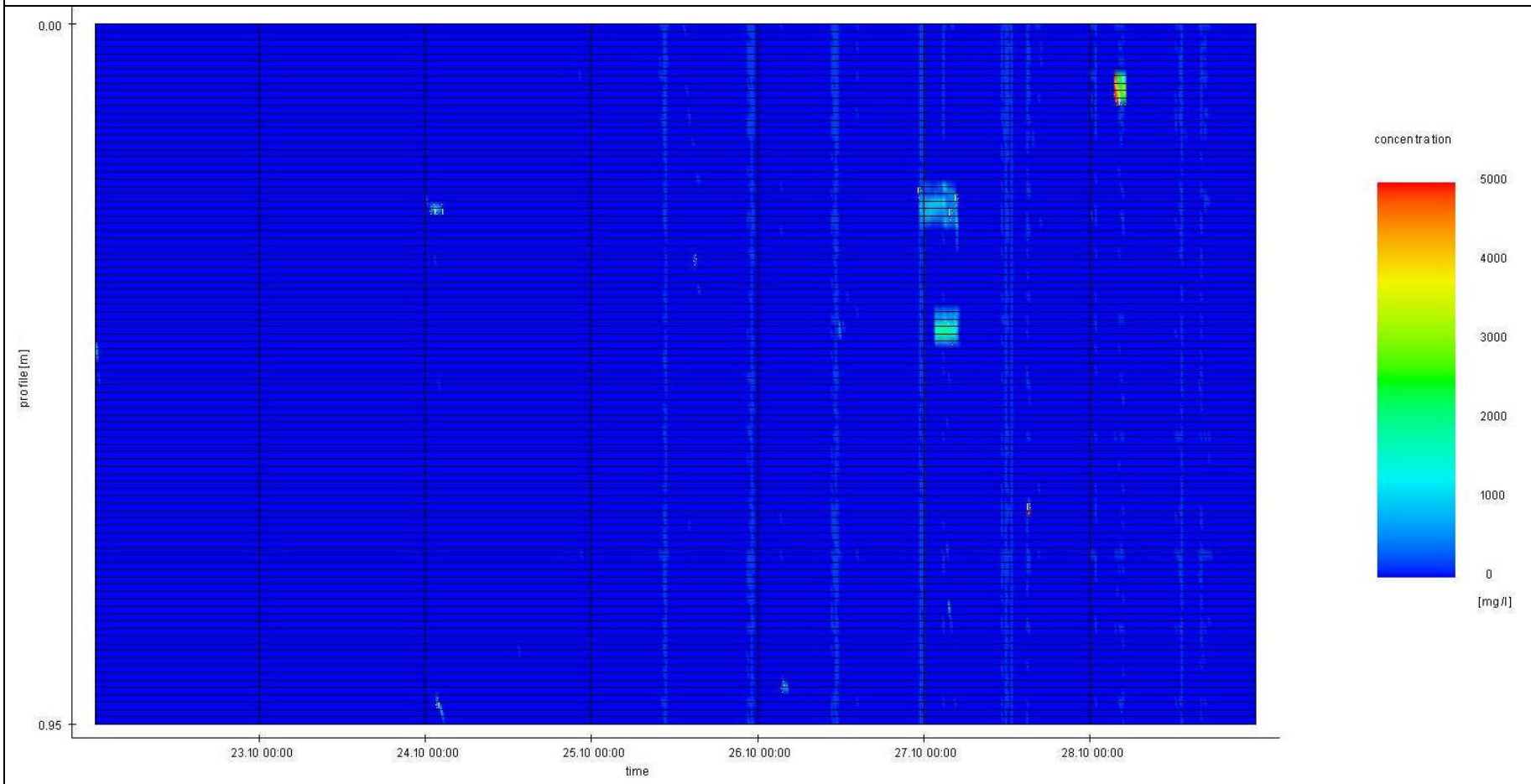
Date:
17/10/2007 – 21/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

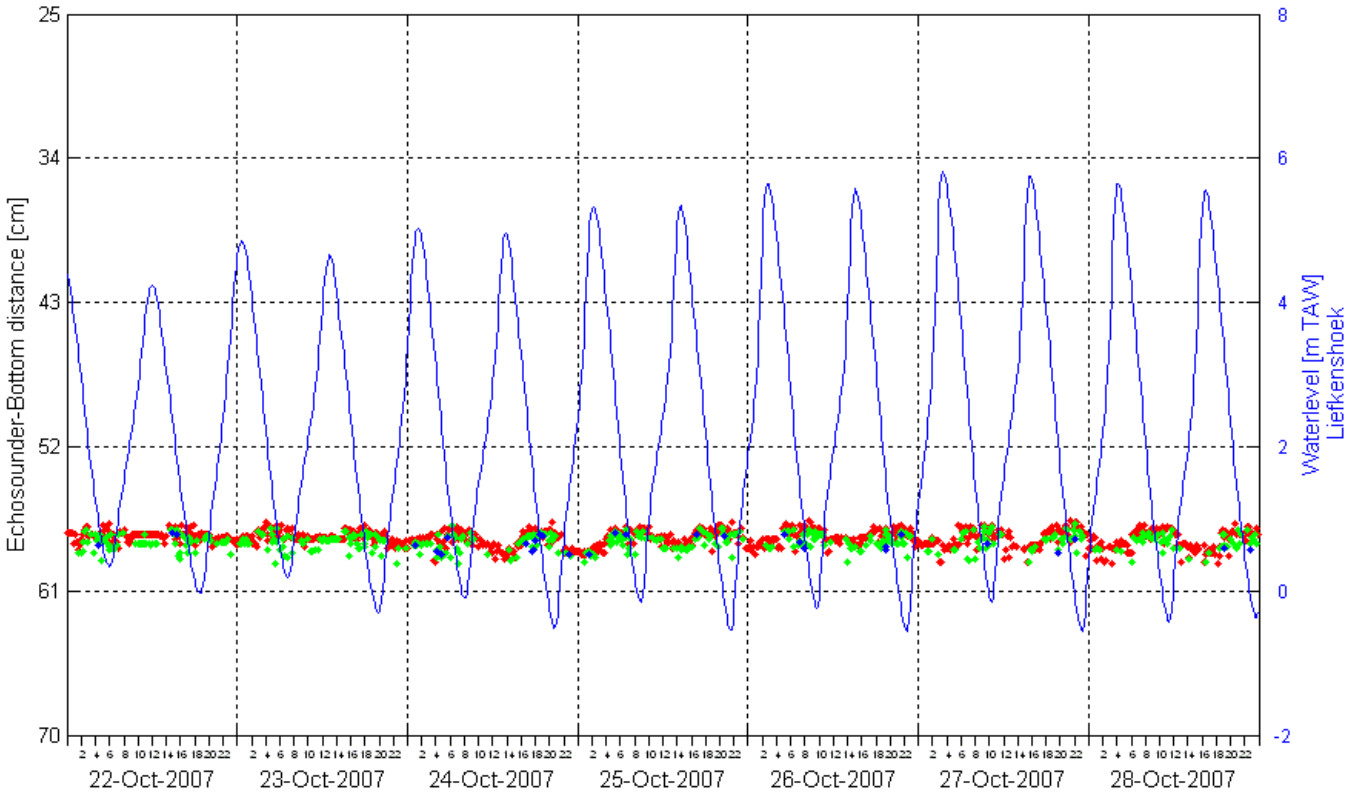
| Location: | Date: |
|---|---|
| Deurganckdok CDW | 22/10/2007 – 28/10/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

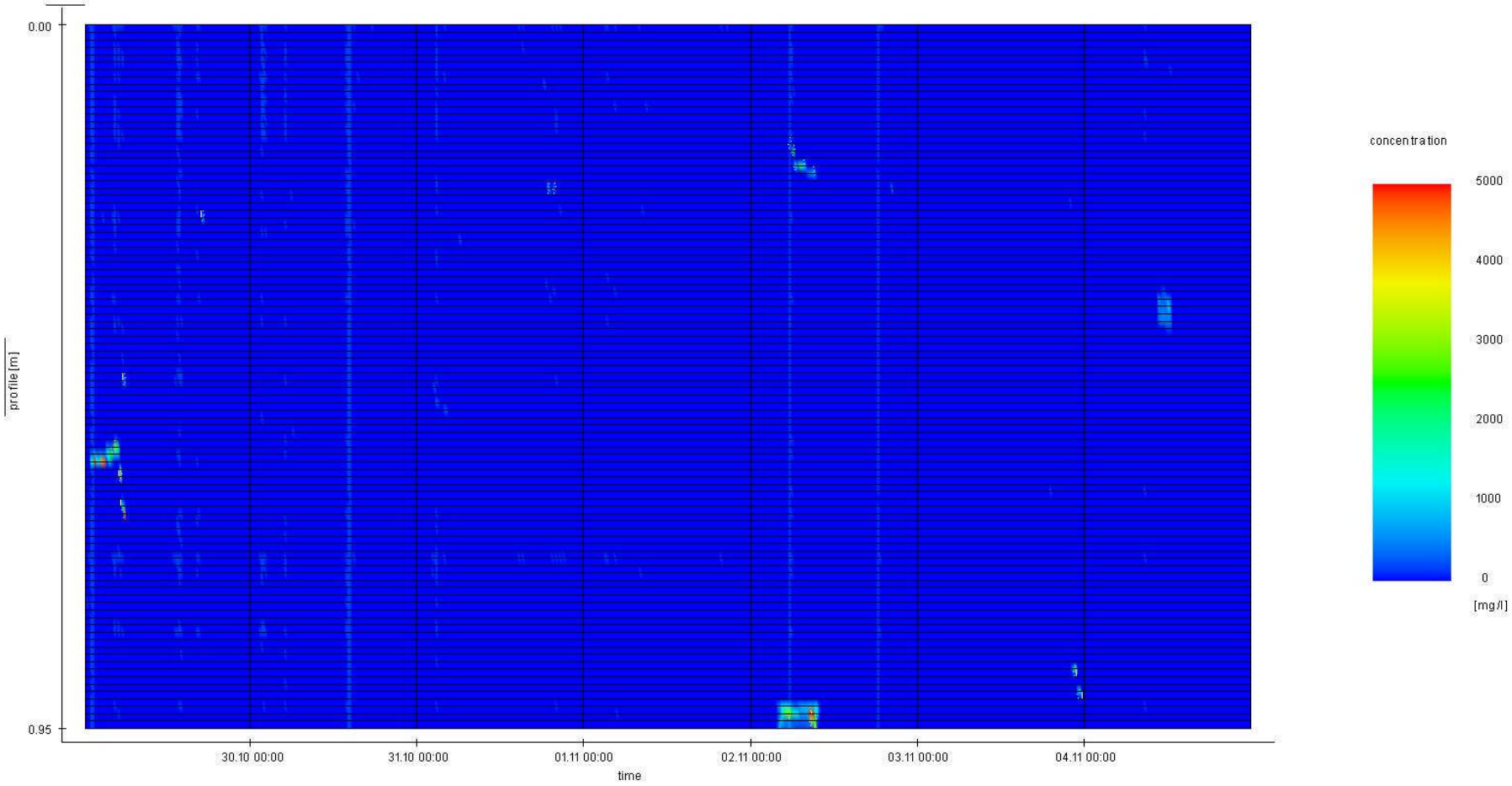
Date:
22/10/2007 – 28/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

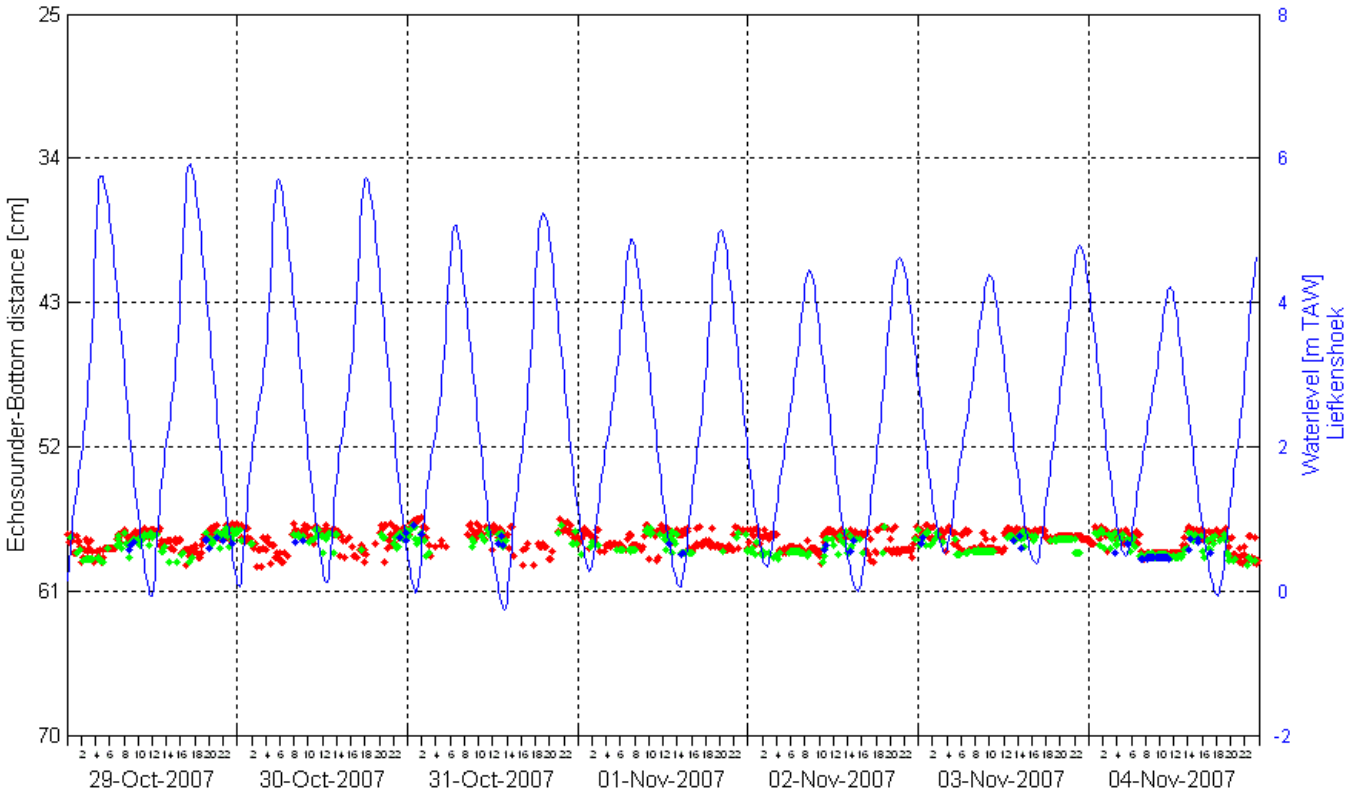
| Location: | Date: |
|---|---|
| Deurganckdok CDW | 29/10/2007 – 04/11/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

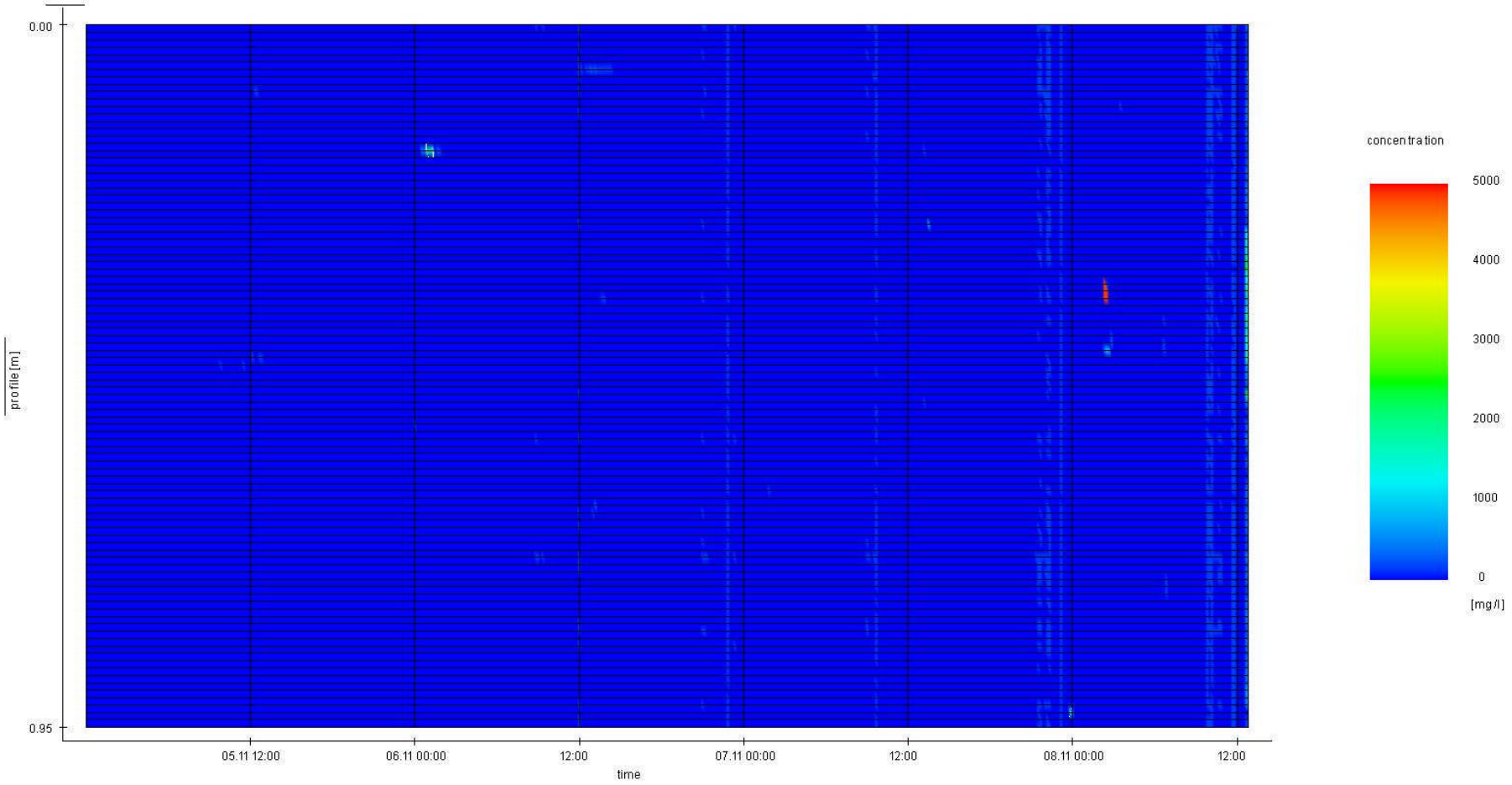
Date:
29/10/2007 – 04/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

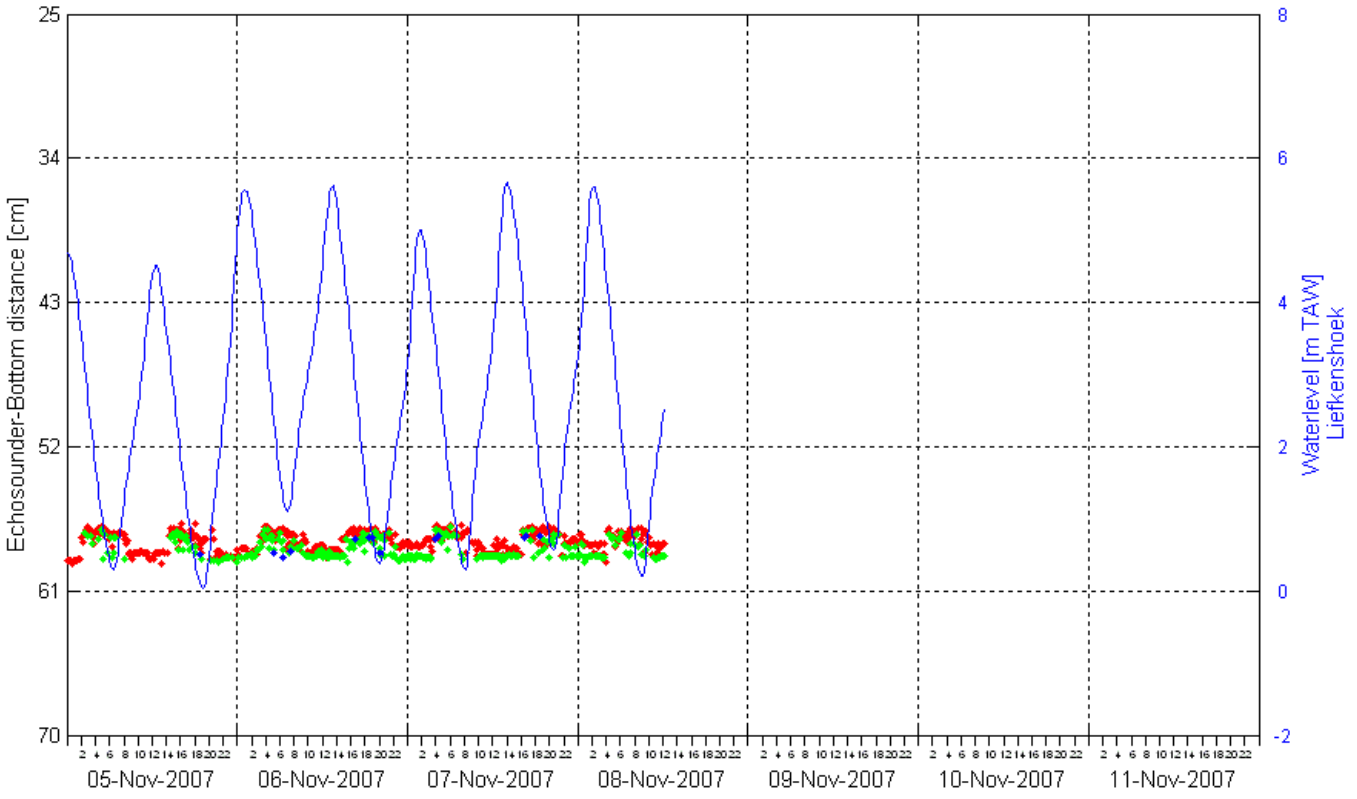
| Location: | Date: |
|---|---|
| Deurganckdok CDW | 05/11/2007 – 08/11/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

Date:
05/11/2007 – 08/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

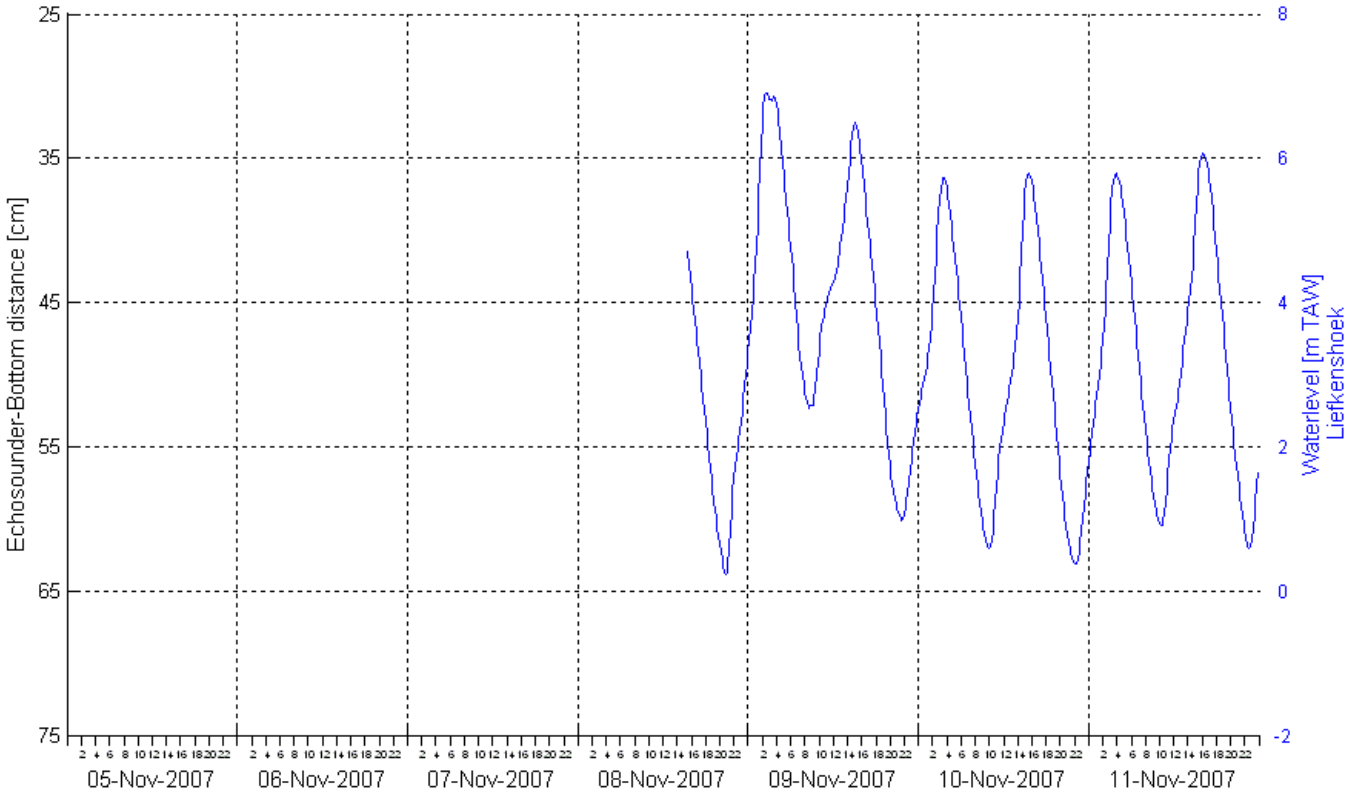
# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007

NO DATA

| Time series suspended sediment concentration<br>ARGUS ASM-IV | | *Data processed by:* IMDC |
|---|---|---|
| Location:<br>Deurganckdok CDW | Date:<br>08/11/2007 – 11/11/2007 | *In association with:* WL \| delft hydraulics, GEMS International |

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

Date:
08/11/2007 – 11/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

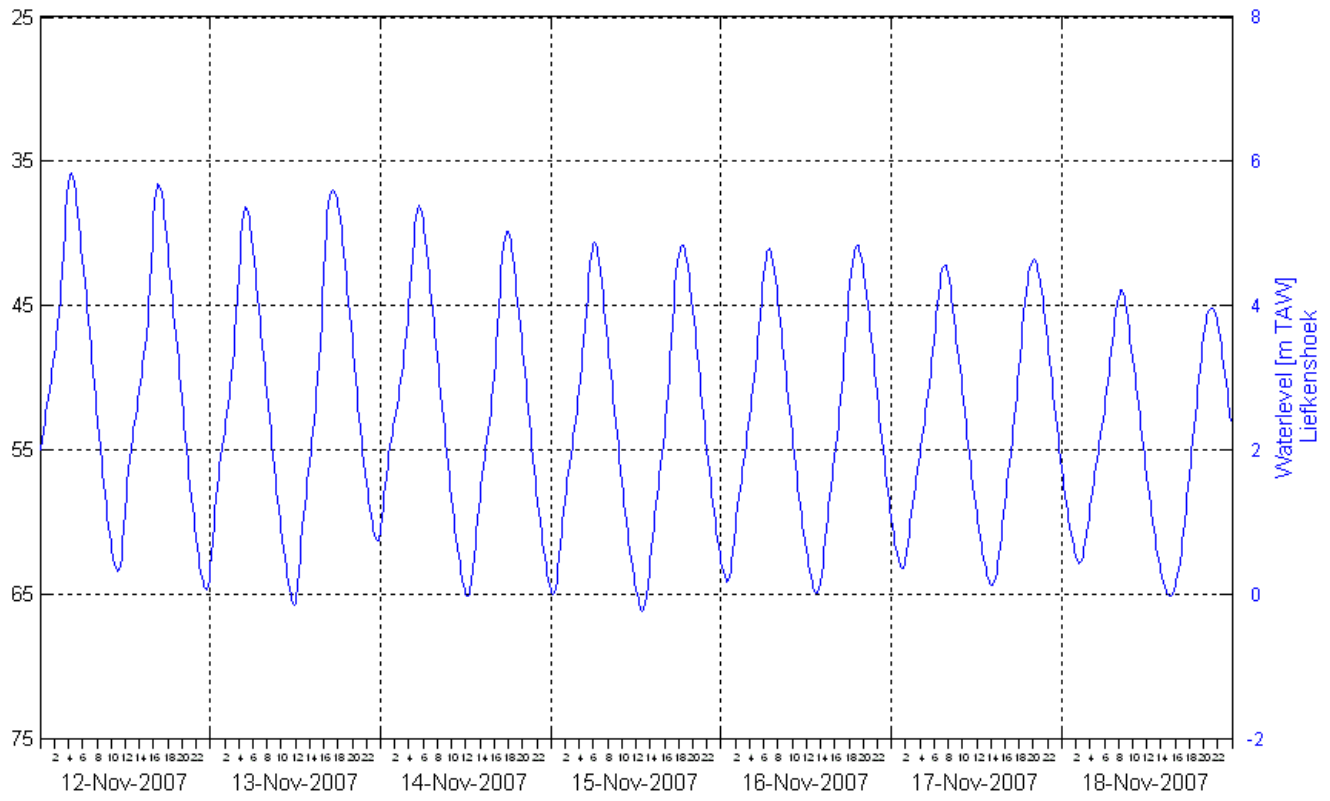
# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007

NO DATA

| Time series suspended sediment concentration<br>ARGUS ASM-IV | | *Data processed by:* IMDC |
|---|---|---|
| Location:<br>Deurganckdok CDW | Date:<br>12/11/2007 – 18/11/2007 | *In association with:* WL \| delft hydraulics, GEMS International |

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

Date:
12/11/2007 – 18/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

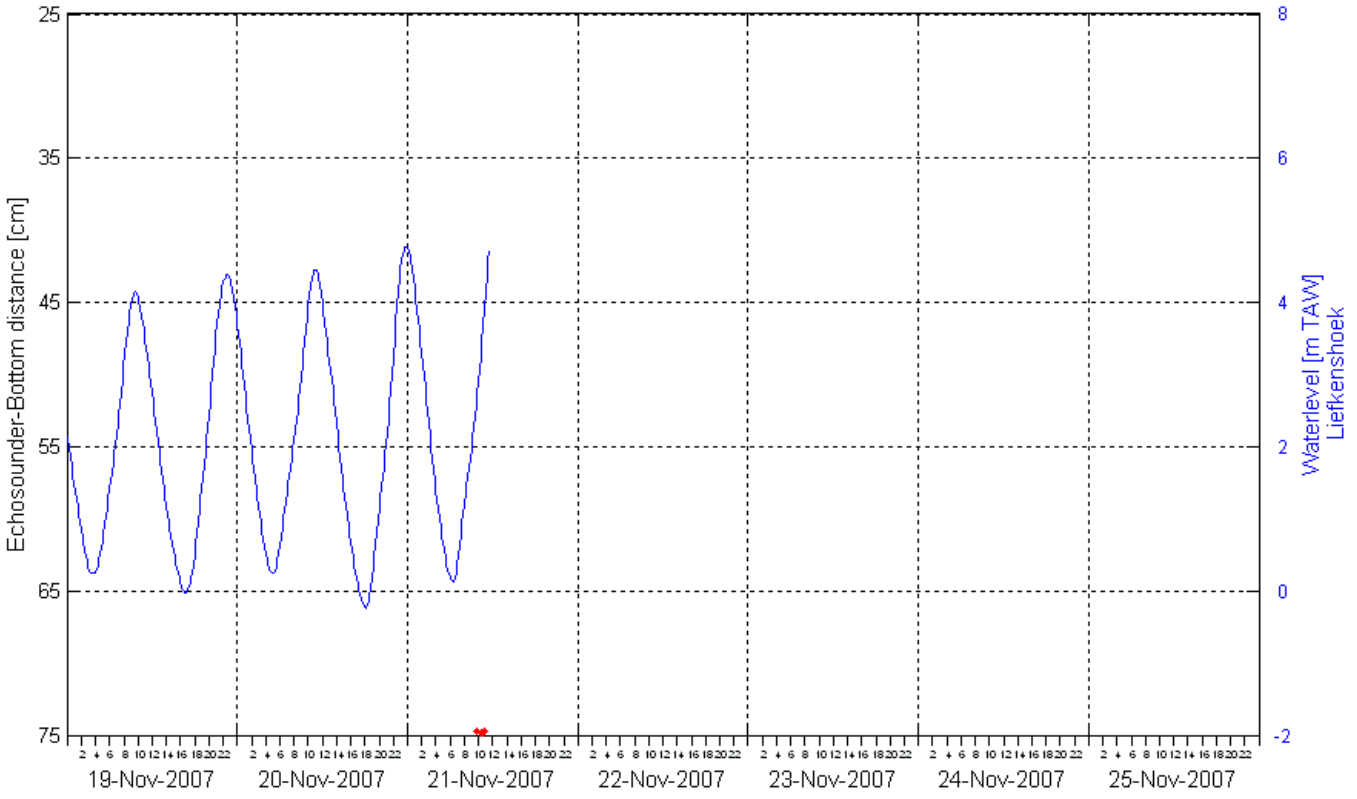
# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007

NO DATA

| Time series suspended sediment concentration<br>ARGUS ASM-IV | | *Data processed by:* IMDC |
|---|---|---|
| Location:<br>Deurganckdok CDW | Date:<br>19/11/2007 – 21/11/2007 | *In association with:* WL \| delft hydraulics, GEMS International |

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

Date:
19/11/2007 – 21/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

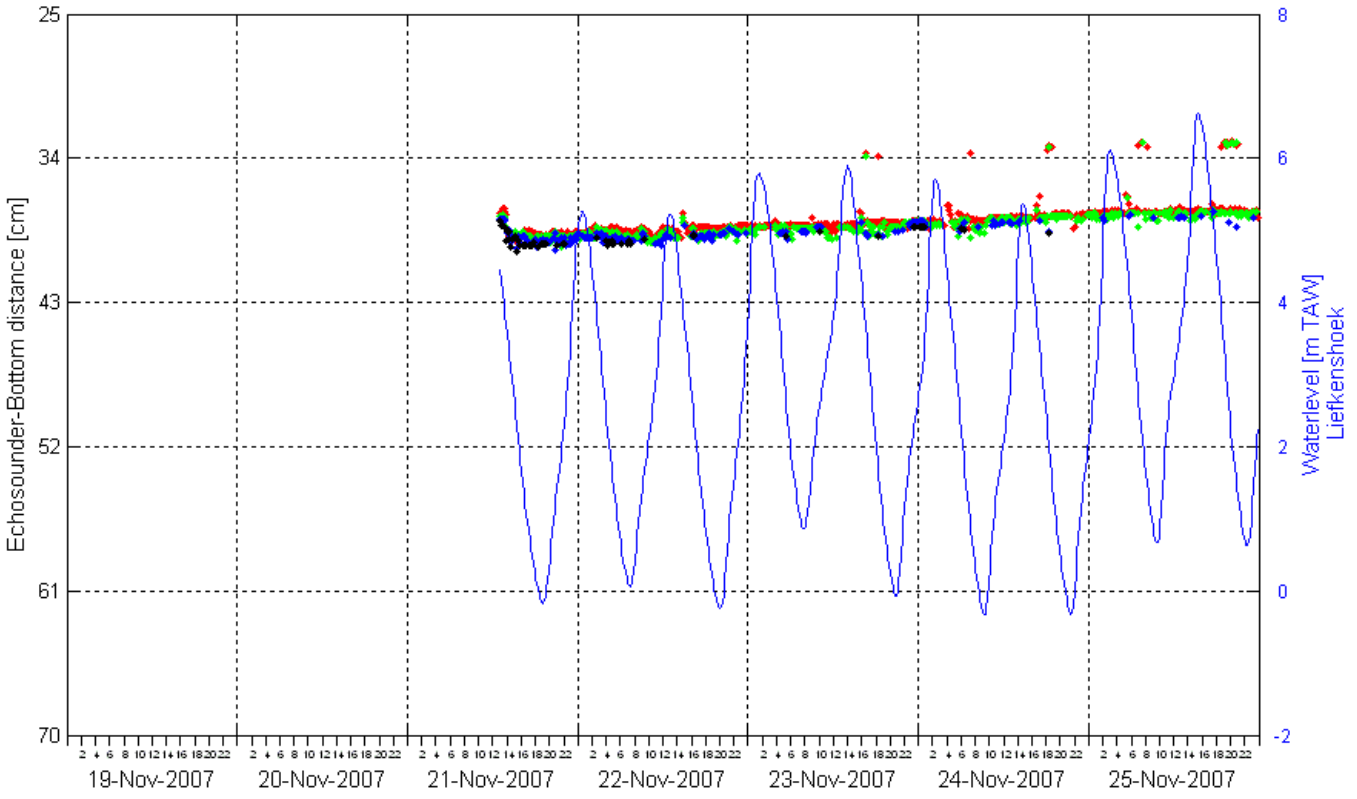
# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007

NO DATA

| Time series suspended sediment concentration<br>ARGUS ASM-IV | | *Data processed by:* IMDC |
|---|---|---|
| Location:<br>Deurganckdok CDW | Date:<br>21/11/2007 – 25/11/2007 | *In association with:* WL \| delft hydraulics, GEMS International |

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

Date:
21/11/2007 – 25/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

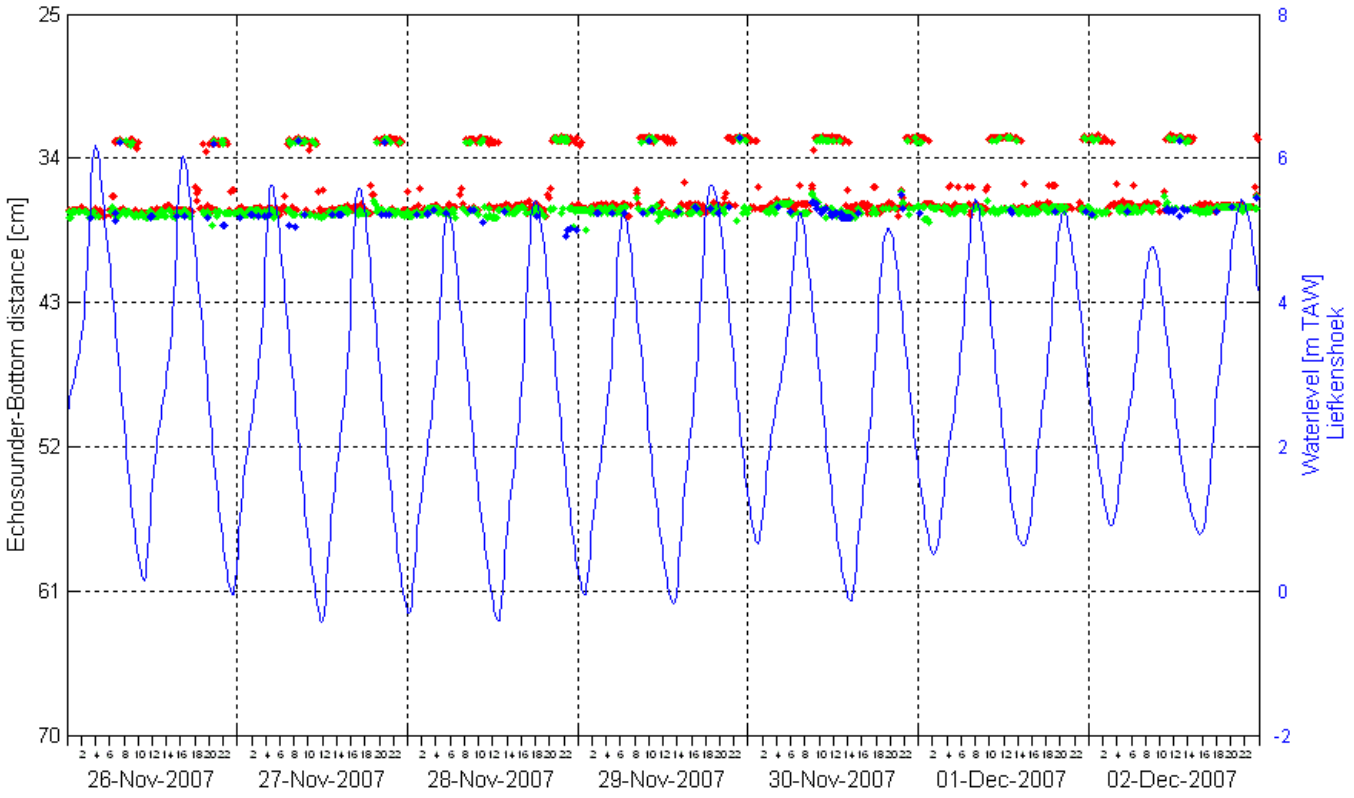
# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007

NO DATA

| Time series suspended sediment concentration<br>ARGUS ASM-IV | | *Data processed by:* IMDC |
|---|---|---|
| Location:<br>Deurganckdok CDW | Date:<br>26/11/2007 – 02/12/2007 | *In association with:* WL \| delft hydraulics, GEMS International |

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

Date:
26/11/2007 – 02/12/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

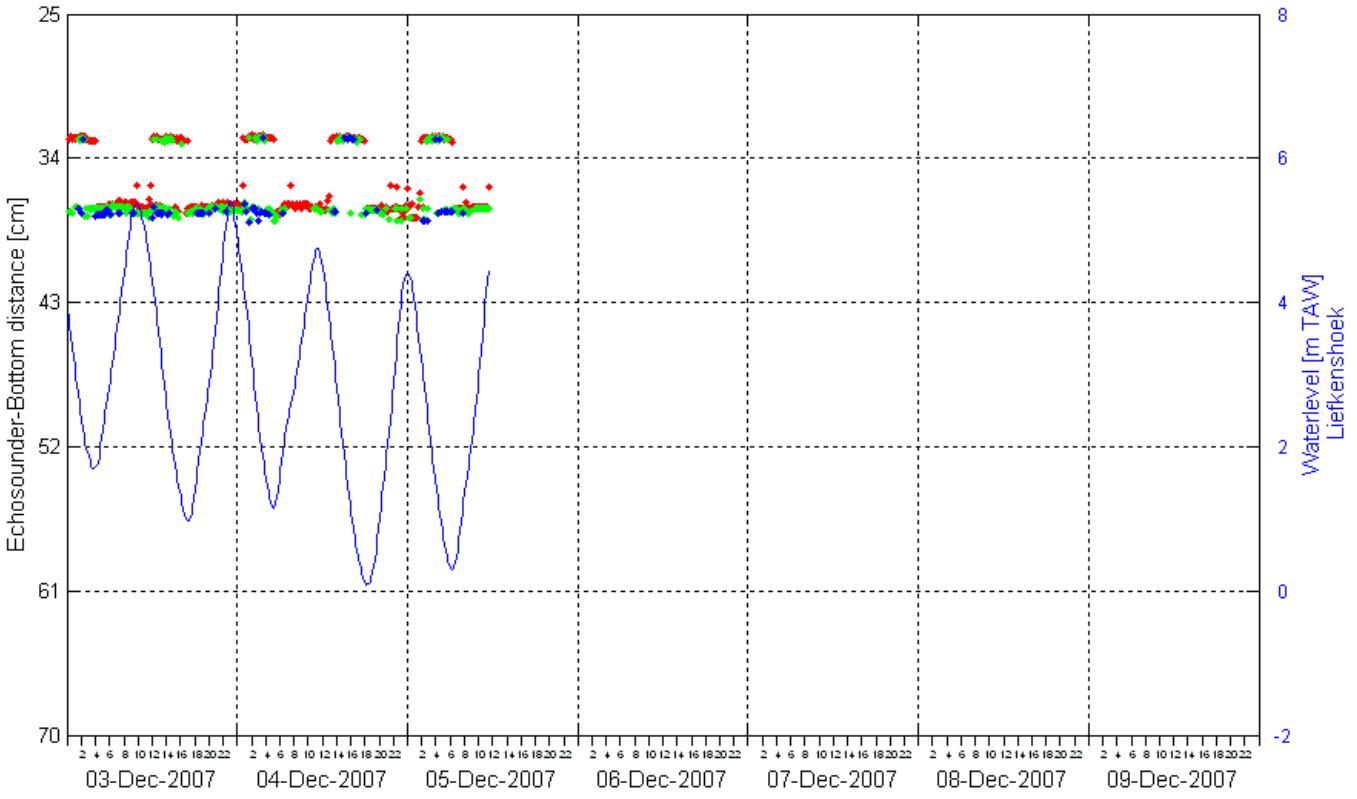
# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007

NO DATA

| Time series suspended sediment concentration<br>ARGUS ASM-IV | | *Data processed by:* IMDC |
|---|---|---|
| Location:<br>Deurganckdok CDW | Date:<br>02/12/2007 – 05/12/2007 | *In association with:* WL \| delft hydraulics, GEMS International |

*I/RA/11283/07.095/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

Date:
02/12/2007 – 05/12/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.095/MSA*

## ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom]

| *Date* | *Tide no.* | *Phase* | *Tidal diff [m]* | *123-118* | *117-108* | *107-98* | *97-88* | *87-78* | *77-68* | *67-58* | *57-48* | *47-38* | *37-28* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20070926 | 1 | ebb | 0 | 1492.5 | 1604.3 | 1902.3 | 2258.1 | 1944.8 | 1900.2 | 2003.7 | 2442 | 2277.5 | 1795 |
| 20070927 | 1 | flood | 20.1 | 70.2 | 68.1 | 130.9 | 177.3 | 92.6 | 105.4 | 105.6 | 173.6 | 159.4 | 133.3 |
| 20070927 | 2 | ebb | 6 | 46.8 | 33.3 | 58.6 | 73.8 | 31.8 | 30 | 28.3 | 58.3 | 51.2 | 42.4 |
| 20070927 | 2 | flood | 5.6 | 89.6 | 75.2 | 98.9 | 113.9 | 72.8 | 72.1 | 70.2 | 100.1 | 92.4 | 84.8 |
| 20070927 | 3 | ebb | 6.2 | 38.8 | 25.1 | 49.5 | 65.4 | 23.6 | 22.4 | 21.3 | 49 | 43.5 | 34.1 |
| 20070928 | 3 | flood | 6.4 | 66.5 | 52.2 | 76 | 92.4 | 49 | 47.6 | 45.9 | 77.5 | 69.7 | 60.1 |
| 20070928 | 4 | ebb | 5.9 | 57.9 | 45.4 | 71.1 | 86.4 | 42.4 | 40.5 | 38.4 | 70 | 63.2 | 53 |
| 20070928 | 4 | flood | 6 | 110 | 98.7 | 118.9 | 136.9 | 94.9 | 91.3 | 90.3 | 120.4 | 113.6 | 104.3 |
| 20070928 | 5 | ebb | 6.5 | 52.4 | 41.6 | 67.3 | 86.5 | 41.5 | 37.9 | 37.3 | 66.6 | 60.4 | 50.7 |
| 20070929 | 5 | flood | 6.6 | 92 | 78.2 | 102.1 | 117 | 74 | 71.3 | 71 | 102.9 | 95.1 | 85.3 |
| 20070929 | 6 | ebb | 6.2 | 78.9 | 63.5 | 88.7 | 104.6 | 60.5 | 58.7 | 58 | 90.8 | 83.2 | 73.9 |
| 20070929 | 6 | flood | 6.2 | 104.2 | 89.9 | 108.5 | 126.1 | 86 | 84 | 83.8 | 115.3 | 106.9 | 96.9 |
| 20070929 | 7 | ebb | 6.3 | 55.5 | 42.5 | 63.5 | 79.5 | 40.6 | 38.3 | 37.9 | 69.8 | 63.5 | 51.9 |
| 20070930 | 7 | flood | 6.3 | 77.8 | 65 | 83.8 | 100.7 | 61.1 | 58.9 | 59.6 | 90 | 81.8 | 71.2 |
| 20070930 | 8 | ebb | 6.1 | 61.2 | 49.8 | 68.9 | 85.3 | 45.4 | 42.9 | 43.9 | 74.8 | 68.6 | 57.2 |
| 20070930 | 8 | flood | 5.9 | 74.9 | 61.1 | 81.6 | 97.8 | 57.9 | 55.7 | 57.7 | 88.2 | 79.8 | 68.9 |
| 20071001 | 9 | ebb | 6.3 | 43.8 | 32.9 | 51.3 | 75.8 | 29.3 | 27.8 | 27.8 | 55.4 | 50.8 | 39.9 |
| 20071001 | 9 | flood | 5.9 | 53.6 | 42.6 | 61.3 | 77.5 | 39 | 37.7 | 38.1 | 67.3 | 59.7 | 48.2 |
| 20071001 | 10 | ebb | 5.8 | 66.2 | 54.1 | 73.8 | 89 | 50.1 | 47.3 | 48.9 | 78.4 | 73.1 | 62 |
| 20071001 | 10 | flood | 5.8 | 76.4 | 64 | 81.8 | 100.4 | 59.3 | 57.3 | 63.2 | 91.4 | 81.4 | 69.8 |
| 20071002 | 11 | ebb | 5.8 | 42.8 | 34.3 | 51.8 | 67.8 | 29.1 | 27.7 | 41 | 57 | 49.1 | 38.5 |
| 20071002 | 11 | flood | 5.5 | 43.4 | 31.1 | 51.4 | 66.9 | 28 | 27 | 23.4 | 54.4 | 49.3 | 38.3 |
| 20071002 | 12 | ebb | 5.3 | 36.2 | 25.7 | 46.6 | 60.6 | 21.6 | 20.4 | 16.5 | 48.1 | 43.7 | 32.3 |
| 20071002 | 12 | flood | 5.3 | 59.2 | 47 | 67.8 | 82.3 | 41.9 | 41 | 36.7 | 70 | 65.2 | 52.5 |
| 20071003 | 13 | ebb | 5.3 | 40.3 | 32 | 50.5 | 65.1 | 26.9 | 25.1 | 21.8 | 51.2 | 47.6 | 38.3 |
| 20071003 | 13 | flood | 4.9 | 58.8 | 47 | 66.9 | 82.3 | 41.8 | 40.7 | 37.5 | 70.4 | 64.6 | 53.2 |
| 20071003 | 14 | ebb | 4.9 | 40 | 29.9 | 49.9 | 64.4 | 24.6 | 23.1 | 19.4 | 51 | 47.7 | 36.4 |
| 20071003 | 14 | flood | 4.9 | 68.4 | 63.4 | 83.3 | 92.6 | 53.1 | 51.5 | 47.6 | 79.2 | 73.7 | 63.2 |
| 20071004 | 15 | ebb | 4.7 | 42.6 | 29.5 | 53 | 67.6 | 29.2 | 27.6 | 23.1 | 54 | 49.8 | 39.5 |
| 20071004 | 15 | flood | 4.2 | 45.2 | 30.5 | 50.3 | 68.1 | 29.3 | 29.1 | 26.2 | 54 | 50.3 | 39.4 |
| 20071004 | 16 | ebb | 4.1 | 27.5 | 16.3 | 35 | 51.6 | 17.7 | 15.7 | 14 | 36.8 | 34.1 | 24.9 |
| 20071004 | 16 | flood | 4.4 | 51.2 | 36.5 | 56.6 | 76.3 | 35.7 | 35.4 | 32 | 61.6 | 57.3 | 46.4 |
| 20071005 | 17 | ebb | 4.1 | 26.3 | 16.1 | 34.2 | 52.7 | 16.8 | 16.4 | 14.1 | 36.4 | 33.7 | 24.3 |

## ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom]

| *Date* | *Tide no.* | *Phase* | *Tidal diff [m]* | *123-118* | *117-108* | *107-98* | *97-88* | *87-78* | *77-68* | *67-58* | *57-48* | *47-38* | *37-28* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20071005 | 17 | flood | 3.5 | 34.7 | 22.6 | 41.5 | 61.1 | 21.9 | 21.9 | 19.9 | 44.6 | 41 | 32.2 |
| 20071005 | 18 | ebb | 3.9 | 14.9 | 6.9 | 20.8 | 39.8 | 6.3 | 6.8 | 5 | 21.4 | 18.9 | 12.1 |
| 20071005 | 18 | flood | 4.2 | 46.2 | 33.2 | 51.7 | 75.1 | 31.2 | 31.1 | 28.9 | 57.6 | 52.8 | 42.6 |
| 20071006 | 19 | ebb | 4.1 | 19.2 | 8.9 | 24.4 | 45.3 | 8.5 | 9 | 7.1 | 25.5 | 22.9 | 15.7 |
| 20071006 | 19 | flood | 3.8 | 36.4 | 23.4 | 42.5 | 64.5 | 22.3 | 21.5 | 19.9 | 47 | 41.9 | 31.6 |
| 20071006 | 20 | ebb | 4.1 | 12.2 | 3.7 | 17.7 | 36 | 3.7 | 4.5 | 2.9 | 19.6 | 16.4 | 10 |
| 20071007 | 20 | flood | 4.7 | 33 | 19.2 | 38.3 | 60.6 | 17.8 | 17 | 16.5 | 48.3 | 38.9 | 28.7 |
| 20071007 | 21 | ebb | 4.4 | 20.2 | 10.1 | 27.5 | 47.2 | 10 | 9.8 | 9.2 | 34 | 27.1 | 18.1 |
| 20071007 | 21 | flood | 4.3 | 35.6 | 21.9 | 42.7 | 64.5 | 21.1 | 20.4 | 21.8 | 60.4 | 43.3 | 31.9 |
| 20071007 | 22 | ebb | 4.7 | 21 | 11 | 27.7 | 47.3 | 9.9 | 10 | 10.2 | 38.7 | 26.5 | 17.5 |
| 20071008 | 22 | flood | 5.2 | 34.1 | 21 | 41 | 61.3 | 18.9 | 18.4 | 19.4 | 53.4 | 40.7 | 28.4 |
| 20071008 | 23 | ebb | 4.8 | 18.2 | 7.5 | 26.2 | 43.8 | 6.2 | 6 | 6.3 | 32.8 | 24.7 | 13.8 |
| 20071008 | 23 | flood | 4.7 | 36.3 | 26.5 | 44.1 | 63.4 | 20.5 | 20.2 | 21.6 | 61.7 | 42.7 | 30.5 |
| 20071008 | 24 | ebb | 5.2 | 27.7 | 13.8 | 33.8 | 55.1 | 14.2 | 13.9 | 16.2 | 49.7 | 38.1 | 23 |
| 20071009 | 24 | flood | 5.4 | 28.3 | 14.3 | 33 | 54.7 | 13.2 | 12.6 | 14.7 | 47.2 | 35.5 | 23.6 |
| 20071009 | 25 | ebb | 5.1 | 24.6 | 12.5 | 31.3 | 52.2 | 11.2 | 11.6 | 13.2 | 44.6 | 34.1 | 22.4 |
| 20071009 | 25 | flood | 4.9 | 31.8 | 16.8 | 39.1 | 60.4 | 16 | 15.5 | 20.3 | 62.6 | 43.1 | 27.8 |
| 20071009 | 26 | ebb | 5.4 | 26.7 | 13.5 | 34.8 | 53.8 | 13.2 | 13 | 18.6 | 46.2 | 39.1 | 24.2 |
| 20071010 | 26 | flood | 5.7 | 42.6 | 26 | 48.7 | 69.9 | 24 | 23.8 | 29.4 | 64.9 | 50.6 | 35.9 |
| 20071010 | 27 | ebb | 5.2 | 34.2 | 19.1 | 42.7 | 62.3 | 17.9 | 17.9 | 21.7 | 51.9 | 41.8 | 31.3 |
| 20071010 | 27 | flood | 5.1 | 51.1 | 33.1 | 57.2 | 80 | 31.3 | 30.4 | 37.9 | 84.9 | 59.5 | 45.2 |
| 20071010 | 28 | ebb | 5.6 | 24.6 | 9.9 | 32.6 | 54 | 9.7 | 9.1 | 15.9 | 51.8 | 35.3 | 23.5 |
| 20071011 | 28 | flood | 5.6 | 49.8 | 32.4 | 56.5 | 79.4 | 31.4 | 29.7 | 37.9 | 72.8 | 58.3 | 45.2 |
| 20071011 | 29 | ebb | 5.5 | 40.6 | 23.4 | 47.8 | 71.6 | 21.8 | 20.1 | 28.2 | 67.7 | 51.9 | 38.8 |
| 20071011 | 29 | flood | 5.4 | 61.4 | 41.5 | 66.2 | 90.9 | 41.6 | 40.1 | 48.4 | 91.1 | 71.3 | 56.9 |
| 20071011 | 30 | ebb | 5.4 | 40.1 | 22.8 | 47.6 | 74.1 | 23.1 | 20.2 | 30.2 | 72 | 53.6 | 40.6 |
| 20071012 | 30 | flood | 5.8 | 64.7 | 45.1 | 69.5 | 95.2 | 43.5 | 40.7 | 52.5 | 97.9 | 75.4 | 59.6 |
| 20071012 | 31 | ebb | 5.4 | 48.8 | 30.1 | 58.6 | 85.7 | 29.8 | 28 | 40.8 | 88.5 | 64.3 | 48 |
| 20071012 | 31 | flood | 5.3 | 69.1 | 49.6 | 75.1 | 104.7 | 48.2 | 46.1 | 59.3 | 108.2 | 82.4 | 67.6 |
| 20071012 | 32 | ebb | 5.8 | 36.5 | 18.3 | 47.2 | 73.8 | 18.5 | 16.9 | 31.5 | 77.7 | 53.4 | 39.4 |
| 20071013 | 32 | flood | 5.6 | 53.2 | 32.5 | 91.7 | 86.6 | 32.6 | 30.5 | 44.6 | 86.8 | 65.6 | 50.4 |
| 20071013 | 33 | ebb | 5.6 | 47.9 | 28.7 | 59.8 | 87.5 | 30.3 | 27 | 41.3 | 78.7 | 64 | 50.5 |
| 20071013 | 33 | flood | 5.5 | 57.9 | 37.2 | 54.9 | 92.2 | 37 | 34.4 | 49.8 | 85.3 | 69.7 | 56.3 |
| 20071013 | 34 | ebb | 5.6 | 40.3 | 23.7 | 42.4 | 80.5 | 23.9 | 20.7 | 35.1 | 73.5 | 57.2 | 45.4 |

| ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom] | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Date*** | ***Tide no.*** | ***Phase*** | ***Tidal diff [m]*** | ***123-118*** | ***117-108*** | ***107-98*** | ***97-88*** | ***87-78*** | ***77-68*** | ***67-58*** | ***57-48*** | ***47-38*** | ***37-28*** |
| 20071014 | 34 | flood | 5.5 | 49 | 69.4 | 48.1 | 86.7 | 29.6 | 26.1 | 42.4 | 83.7 | 64 | 49 |
| 20071014 | 35 | ebb | 5.4 | 43.2 | 28.1 | 53 | 81.3 | 23.9 | 21.8 | 36.2 | 78.3 | 58.5 | 43.5 |
| 20071014 | 35 | flood | 5.4 | 52.6 | 30.1 | 51.1 | 89.3 | 31.2 | 28.4 | 46.4 | 89.9 | 66.6 | 52.3 |
| 20071014 | 36 | ebb | 5.4 | 37.8 | 18.5 | 38.5 | 75 | 17.7 | 15.8 | 31.5 | 72.3 | 53.9 | 40.2 |
| 20071015 | 36 | flood | 5.3 | 40.8 | 20.9 | 41.6 | 79.8 | 20.8 | 18.3 | 36.8 | 83.3 | 58.3 | 42.9 |
| 20071015 | 37 | ebb | 5.2 | 40.9 | 20.3 | 42.9 | 83.3 | 20.1 | 17.4 | 37 | 81.1 | 62 | 47.1 |
| 20071015 | 37 | flood | 5.2 | 55.1 | 36.9 | 57.9 | 96.1 | 33.3 | 29.4 | 51.7 | 109 | 75.4 | 58.8 |
| 20071016 | 38 | ebb | 5.2 | 37.4 | 16.6 | 37.4 | 78.3 | 17 | 14.2 | 34.6 | 81.8 | 59.8 | 45.6 |
| 20071016 | 38 | flood | 5.1 | 42.1 | 171.8 | 42.5 | 83.6 | 22.2 | 19.2 | 41.5 | 83.5 | 63.1 | 49 |
| 20071016 | 39 | ebb | 4.9 | 28.6 | 20.5 | 34 | 75 | 13.1 | 10.5 | 31.1 | 71.7 | 52.3 | 41.9 |
| 20071016 | 39 | flood | 4.9 | 43.8 | 23.7 | 47.5 | 89.5 | 25 | 21.7 | 45.6 | 91.2 | 66.9 | 52.7 |
| 20071017 | 40 | ebb | 4.9 | 32.4 | 14 | 36.3 | 78.3 | 15.5 | 13.1 | 35.6 | 80.2 | 57.3 | 47.2 |
| 20071017 | 40 | flood | 5 | 46.5 | 25.7 | 49.9 | 93.6 | 26.2 | 23.2 | 49.8 | 100 | 72.8 | 60.6 |
| 20071017 | 41 | ebb | 19.4 | 50.4 | 36.8 | 69.1 | 121.7 | 33 | 29.5 | 141.3 | 173.3 | 128.7 | 78.4 |
| 20071017 | 41 | flood | 19.6 | 149.9 | 131.6 | 120.8 | 178.7 | 183.6 | 221.2 | 387.9 | 283.4 | 240.2 | 246 |
| 20071018 | 42 | ebb | 4.4 | 19.6 | 12.1 | 6.8 | 5.8 | 5.7 | 6.1 | 5.5 | 13.5 | 7.3 | 8.3 |
| 20071018 | 42 | flood | 4.2 | 20.9 | 13.5 | 7.2 | 5.5 | 5.6 | 6 | 5.2 | 15.2 | 7.3 | 8.8 |
| 20071018 | 43 | ebb | 4.5 | 11.9 | 5.9 | 2.1 | 1.7 | 1.6 | 1.8 | 1.4 | 6.8 | 2.4 | 2.9 |
| 20071018 | 43 | flood | 4.3 | 29.8 | 20.7 | 12 | 10 | 10.9 | 10.9 | 9.8 | 22.3 | 12.2 | 13.1 |
| 20071019 | 44 | ebb | 4.3 | 11.2 | 3.4 | 1.3 | 0.5 | 0.8 | 0.8 | 0.5 | 4.8 | 1.1 | 1.1 |
| 20071019 | 44 | flood | 3.9 | 21.9 | 15 | 8.5 | 7 | 7.8 | 7.6 | 6.5 | 17.1 | 8.3 | 9.3 |
| 20071019 | 45 | ebb | 4.1 | 9.9 | 4.3 | 1.3 | 0.7 | 1.6 | 1.3 | 0.7 | 4.9 | 1.6 | 1.7 |
| 20071019 | 45 | flood | 4.1 | 30 | 22.2 | 12.1 | 10.2 | 10.3 | 10.9 | 9.7 | 23.1 | 13.3 | 16 |
| 20071020 | 46 | ebb | 3.8 | 8.5 | 6.3 | 2.6 | 0.7 | 0.9 | 0.9 | 0.7 | 4.9 | 1.6 | 1.7 |
| 20071020 | 46 | flood | 3.5 | 19.3 | 14 | 7.1 | 4.9 | 5.8 | 5.7 | 5.5 | 14.4 | 7.2 | 186.6 |
| 20071020 | 47 | ebb | 3.6 | 7.6 | 4.4 | 1.8 | 1.2 | 1.5 | 1.5 | 1.1 | 4.8 | 1.9 | 85.3 |
| 20071020 | 47 | flood | 3.8 | 17.8 | 12.5 | 5.6 | 4 | 4.4 | 4.8 | 3.5 | 14.5 | 5.9 | 6.1 |
| 20071021 | 48 | ebb | 3.6 | 6.5 | 3.7 | 1.5 | 1.2 | 1.1 | 1.1 | 1 | 5.5 | 1.7 | 1.5 |
| 20071021 | 48 | flood | 3.4 | 15.9 | 10.6 | 6.4 | 5.3 | 5.4 | 5.6 | 5.4 | 13.2 | 6.5 | 270.1 |
| 20071021 | 49 | ebb | 3.6 | 3.3 | 1.7 | 0.5 | 0.3 | 0.4 | 0.6 | 0.2 | 3.5 | 0.4 | 0.3 |
| 20071021 | 49 | flood | 4.1 | 13.4 | 8.4 | 3.2 | 2.2 | 2.1 | 14.2 | 2.2 | 9.5 | 3.9 | 2.9 |
| 20071022 | 50 | ebb | 4.2 | 4.5 | 1.2 | 0.2 | 0.2 | 16.3 | 10.7 | 4 | 2.9 | 0.3 | 0.3 |
| 20071022 | 50 | flood | 3.9 | 11.3 | 6.4 | 2.3 | 1.9 | 1.7 | 2.1 | 1.3 | 8 | 2.7 | 1.7 |
| 20071022 | 51 | ebb | 4.2 | 9.5 | 5.5 | 2.7 | 2.3 | 2.2 | 2.4 | 2.3 | 7.2 | 3 | 3.1 |

# ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom]

| *Date* | *Tide no.* | *Phase* | *Tidal diff [m]* | *123-118* | *117-108* | *107-98* | *97-88* | *87-78* | *77-68* | *67-58* | *57-48* | *47-38* | *37-28* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20071023 | 51 | flood | 4.8 | 26 | 19.9 | 10.9 | 9.7 | 10.3 | 10.2 | 9.6 | 21.9 | 13.5 | 11.7 |
| 20071023 | 52 | ebb | 4.6 | 8.8 | 4.9 | 1.8 | 1.5 | 1.5 | 1.2 | 1 | 5.7 | 2.1 | 1.2 |
| 20071023 | 52 | flood | 4.4 | 27 | 19.2 | 11.1 | 8.9 | 8.9 | 9.4 | 8.1 | 22 | 12.9 | 10.5 |
| 20071023 | 53 | ebb | 4.9 | 10.9 | 6.3 | 2.3 | 1.8 | 1.9 | 2.1 | 2.2 | 7.2 | 3.4 | 2.2 |
| 20071024 | 53 | flood | 5.3 | 29.8 | 24 | 37.2 | 12.8 | 12.4 | 12.7 | 11.4 | 25.6 | 15.7 | 25.6 |
| 20071024 | 54 | ebb | 5 | 15.7 | 10.4 | 8.9 | 4.2 | 3.9 | 5.3 | 3.9 | 12.1 | 5.3 | 16.1 |
| 20071024 | 54 | flood | 5 | 43.6 | 35.9 | 25 | 21.8 | 23 | 22.5 | 22.1 | 38.4 | 28.6 | 24.9 |
| 20071024 | 55 | ebb | 5.5 | 18.4 | 12.4 | 5.2 | 4.6 | 4.9 | 4.9 | 4.9 | 14.5 | 7.9 | 6.6 |
| 20071025 | 55 | flood | 5.8 | 54.2 | 46.8 | 34.2 | 31.9 | 32.9 | 35.5 | 32.7 | 49.1 | 38 | 35.4 |
| 20071025 | 56 | ebb | 5.4 | 33.5 | 26.9 | 16.4 | 14 | 14.4 | 14.5 | 14.3 | 29.4 | 20 | 16.1 |
| 20071025 | 56 | flood | 5.4 | 78.4 | 70.3 | 53.8 | 51.7 | 52 | 52.1 | 50.9 | 68.8 | 56.9 | 53.9 |
| 20071025 | 57 | ebb | 5.8 | 21.7 | 14 | 8.2 | 7.9 | 5.9 | 4.7 | 4.6 | 15.9 | 8.2 | 5.5 |
| 20071026 | 57 | flood | 6.1 | 75.5 | 69.3 | 55 | 52.8 | 52.9 | 52.8 | 51.5 | 69.5 | 58.4 | 54.9 |
| 20071026 | 58 | ebb | 5.8 | 38.3 | 31 | 20.4 | 18.9 | 18.5 | 18.2 | 20.8 | 34 | 23.8 | 30.2 |
| 20071026 | 58 | flood | 5.8 | 90.1 | 82.7 | 67.8 | 65.9 | 72.5 | 65.9 | 66 | 83.9 | 72.9 | 70.4 |
| 20071026 | 59 | ebb | 6.1 | 32.1 | 24.8 | 14.1 | 12.5 | 12.6 | 12.2 | 12.4 | 27 | 17.8 | 13.2 |
| 20071027 | 59 | flood | 6.3 | 83.4 | 75.9 | 247.1 | 140.2 | 297.1 | 58.9 | 58 | 76 | 74.1 | 61.2 |
| 20071027 | 60 | ebb | 5.9 | 54.5 | 47.2 | 62.5 | 54.5 | 113.5 | 33 | 33.4 | 52.5 | 44.6 | 37 |
| 20071027 | 60 | flood | 5.8 | 100.9 | 93.7 | 78.4 | 77.6 | 77.9 | 75 | 77.7 | 107.7 | 81.7 | 79.3 |
| 20071027 | 61 | ebb | 6.3 | 40.9 | 32.8 | 23.1 | 22 | 21.6 | 20.8 | 23.1 | 37.7 | 28.6 | 22.9 |
| 20071028 | 61 | flood | 6.2 | 77.1 | 373.2 | 58.1 | 56.8 | 56.4 | 54.6 | 65.2 | 71.9 | 61.8 | 57.9 |
| 20071028 | 62 | ebb | 6.1 | 47.5 | 133.7 | 29.7 | 28.4 | 27.2 | 28.3 | 29.3 | 45.7 | 35.8 | 31.3 |
| 20071028 | 62 | flood | 5.9 | 91.8 | 83.6 | 70.2 | 68.9 | 68.1 | 66.9 | 68 | 85.9 | 74.6 | 69.9 |
| 20071028 | 63 | ebb | 5.9 | 49.3 | 41.7 | 33.6 | 31.8 | 30.1 | 30.8 | 33.5 | 48.8 | 38.6 | 34 |
| 20071029 | 63 | flood | 6 | 83.4 | 74.1 | 62.1 | 64.9 | 61.7 | 59.9 | 332.1 | 77.5 | 67 | 62.8 |
| 20071029 | 64 | ebb | 5.8 | 50.4 | 41.7 | 31.1 | 29.3 | 28.6 | 30.9 | 58 | 64.7 | 36.8 | 30.4 |
| 20071029 | 64 | flood | 6 | 86.7 | 78.2 | 65.5 | 71.1 | 65.2 | 63.7 | 61.5 | 83 | 70.8 | 65.5 |
| 20071030 | 65 | ebb | 5.8 | 44.1 | 36.6 | 27.7 | 25.8 | 25.1 | 26 | 25.2 | 43.4 | 34.1 | 28.8 |
| 20071030 | 65 | flood | 5.6 | 76.3 | 69.1 | 56.7 | 55.1 | 53.9 | 53.3 | 52.9 | 71.3 | 60.8 | 57 |
| 20071030 | 66 | ebb | 5.5 | 35.7 | 28.2 | 20 | 18.8 | 17.7 | 20.8 | 17.9 | 35.2 | 25.3 | 20.4 |
| 20071030 | 66 | flood | 5.6 | 89.9 | 82.4 | 69.6 | 67.6 | 67.2 | 66.5 | 65.7 | 86.4 | 74.9 | 71 |
| 20071031 | 67 | ebb | 5.7 | 38.5 | 30.7 | 21.7 | 19.4 | 18.6 | 18.7 | 18.7 | 36.4 | 27.1 | 21.9 |
| 20071031 | 67 | flood | 5.1 | 69.7 | 61.9 | 50.9 | 51.1 | 48 | 52.5 | 47.4 | 67 | 56 | 50.8 |
| 20071031 | 68 | ebb | 5.3 | 38.4 | 30.3 | 21.1 | 19.9 | 18.5 | 19.1 | 20 | 36.6 | 27.1 | 21.5 |

| ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom] | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Date*** | ***Tide no.*** | ***Phase*** | ***Tidal diff [m]*** | ***123-118*** | ***117-108*** | ***107-98*** | ***97-88*** | ***87-78*** | ***77-68*** | ***67-58*** | ***57-48*** | ***47-38*** | ***37-28*** |
| 20071031 | 68 | flood | 5.5 | 76.2 | 68.3 | 62.7 | 55 | 53 | 52 | 51.9 | 73 | 61.2 | 54.9 |
| 20071101 | 69 | ebb | 4.9 | 46.8 | 40.5 | 32 | 29 | 29.5 | 30.2 | 30.4 | 47.7 | 38 | 33.4 |
| 20071101 | 69 | flood | 4.6 | 72.6 | 64.6 | 52.4 | 52.2 | 52.2 | 49.8 | 50.3 | 69.2 | 60.3 | 53.2 |
| 20071101 | 70 | ebb | 4.8 | 30 | 26 | 16.9 | 16.7 | 14.9 | 15 | 15.4 | 30.8 | 21.9 | 17.3 |
| 20071101 | 70 | flood | 4.9 | 62.1 | 54.3 | 44.1 | 43.3 | 42.8 | 41.6 | 42 | 60.3 | 50.6 | 45.2 |
| 20071102 | 71 | ebb | 4.6 | 27.7 | 20.5 | 12.6 | 11.6 | 11.8 | 11.8 | 12.6 | 26 | 18.3 | 13.5 |
| 20071102 | 71 | flood | 4 | 55.3 | 48.9 | 94.1 | 37.7 | 37.6 | 36.8 | 37.1 | 53.8 | 44.4 | 356.3 |
| 20071102 | 72 | ebb | 4.4 | 19.7 | 13.4 | 13.8 | 7.3 | 7.6 | 7.1 | 7.6 | 17.1 | 11.6 | 83.2 |
| 20071102 | 72 | flood | 4.6 | 56.7 | 50.4 | 40.6 | 38.2 | 37.9 | 38.4 | 38.1 | 55.1 | 45 | 41 |
| 20071103 | 73 | ebb | 4.1 | 18.5 | 13.7 | 8.7 | 8 | 8.3 | 8.2 | 8.9 | 17.6 | 12.2 | 9 |
| 20071103 | 73 | flood | 3.8 | 31.5 | 25.3 | 18.7 | 17.7 | 17.2 | 17.5 | 17.6 | 31.3 | 23.1 | 19.1 |
| 20071103 | 74 | ebb | 4 | 10.8 | 6.4 | 3.4 | 3.5 | 3.1 | 3.3 | 3.6 | 9.5 | 5.1 | 3.4 |
| 20071103 | 74 | flood | 4.4 | 25.7 | 19.8 | 14.7 | 12.6 | 11.8 | 11.4 | 13.2 | 25 | 16.8 | 24.8 |
| 20071104 | 75 | ebb | 4.3 | 11.1 | 7.5 | 4.9 | 3.7 | 4.1 | 3.6 | 4.3 | 10.9 | 6.4 | 12.1 |
| 20071104 | 75 | flood | 3.7 | 25.4 | 17.2 | 11.8 | 11 | 45.8 | 10.3 | 11.2 | 20.9 | 14 | 11.8 |
| 20071104 | 76 | ebb | 4.3 | 7.2 | 4.6 | 1.7 | 1.8 | 26.6 | 1.4 | 1.6 | 6.3 | 2.4 | 1.7 |
| 20071105 | 76 | flood | 4.7 | 22.9 | 16.6 | 10.9 | 9.3 | 9 | 10.1 | 9.2 | 21.1 | 14 | 9.3 |
| 20071105 | 77 | ebb | 4.4 | 10.2 | 5.7 | 2.4 | 2 | 2.3 | 2.1 | 2.6 | 9.4 | 4.2 | 2.4 |
| 20071105 | 77 | flood | 4.2 | 18.7 | 12.8 | 5.9 | 5.7 | 5.8 | 6.9 | 5.6 | 15.6 | 8.5 | 4.8 |
| 20071105 | 78 | ebb | 4.5 | 22.8 | 16.5 | 9.9 | 9.3 | 9.6 | 8 | 9.5 | 20.3 | 12.3 | 8.6 |
| 20071106 | 78 | flood | 5.5 | 33.1 | 25 | 29.9 | 16.3 | 15.5 | 16.2 | 16.3 | 30.3 | 21 | 16.7 |
| 20071106 | 79 | ebb | 4.4 | 18.2 | 12.1 | 17.7 | 5.9 | 6.4 | 6 | 8 | 17.7 | 10.5 | 7.3 |
| 20071106 | 79 | flood | 4.5 | 46.1 | 47.2 | 30.5 | 29.2 | 29.2 | 27.8 | 31.4 | 46.1 | 35.7 | 31 |
| 20071106 | 80 | ebb | 5.2 | 19 | 15.8 | 4.6 | 3.9 | 4.4 | 3.8 | 4.6 | 17.5 | 8.1 | 3.2 |
| 20071107 | 80 | flood | 4.6 | 60.9 | 53.8 | 42.4 | 41.2 | 41.3 | 40.2 | 42.8 | 60.1 | 48.6 | 43 |
| 20071107 | 81 | ebb | 4.7 | 21.8 | 15.9 | 6.7 | 5.6 | 4.7 | 5 | 6.7 | 19 | 11 | 5.1 |
| 20071107 | 81 | flood | 5.3 | 55.6 | 48.4 | 35.6 | 36.7 | 33.4 | 34.6 | 35.1 | 52.1 | 42.1 | 34.9 |
| 20071107 | 82 | ebb | 5.1 | 27.2 | 22 | 11.2 | 9.6 | 9.1 | 8.9 | 11.2 | 26.3 | 16.5 | 10.2 |
| 20071108 | 82 | flood | 5 | 66.7 | 61.2 | 46.2 | 45.7 | 45.5 | 44.3 | 46.1 | 64.5 | 54.1 | 53 |
| 20071108 | 83 | ebb | 5.4 | 28.6 | 23.5 | 11.9 | 23 | 66.2 | 9.5 | 11.1 | 26.8 | 19.1 | 10.3 |

## ALTUS Echosounder bottom distance [cm]

| Date | Tide no. | Phase | Signal 1 | Signal 2 | Signal 3 | Signal 4 |
|---|---|---|---|---|---|---|
| 20070926 | 1 | flood | 65.14 | 65.72 | 65.92 | - |
| 20070926 | 1 | ebb | 64.07 | 64.11 | - | - |
| 20070927 | 2 | flood | 64.32 | - | - | - |
| 20070927 | 2 | ebb | 64.15 | 64.23 | - | - |
| 20070927 | 3 | flood | 64.07 | 64.23 | - | - |
| 20070927 | 3 | ebb | 63.29 | 63.86 | - | - |
| 20070928 | 4 | flood | 64.93 | - | - | - |
| 20070928 | 4 | ebb | 62.88 | 63 | - | - |
| 20070928 | 5 | flood | 63.29 | 63.37 | - | - |
| 20070928 | 5 | ebb | 62.34 | 62.67 | - | - |
| 20070929 | 6 | flood | 63.95 | - | - | - |
| 20070929 | 6 | ebb | 62.46 | 63 | - | - |
| 20070929 | 7 | flood | 63.29 | 63.41 | - | - |
| 20070929 | 7 | ebb | 60.69 | 61.56 | - | - |
| 20070930 | 8 | flood | 63.62 | 63.7 | 63.82 | - |
| 20070930 | 8 | ebb | 61.35 | 61.64 | 61.72 | - |
| 20070930 | 9 | flood | 62.34 | 62.55 | - | - |
| 20071001 | 9 | ebb | 62.26 | 62.3 | 62.34 | - |
| 20071001 | 10 | flood | 61.6 | 61.68 | 61.8 | - |
| 20071001 | 10 | ebb | 62.09 | 62.09 | 62.13 | - |
| 20071001 | 11 | flood | 61.64 | 61.68 | 61.76 | - |
| 20071002 | 11 | ebb | 62.22 | 62.26 | 62.42 | - |
| 20071002 | 12 | flood | 62.13 | - | - | - |
| 20071002 | 12 | ebb | 61.76 | 61.93 | 62.09 | - |
| 20071002 | 13 | flood | 61.76 | 62.13 | - | - |
| 20071003 | 13 | ebb | 61.93 | 62.09 | - | - |
| 20071003 | 14 | flood | 61.56 | 62.05 | - | - |
| 20071003 | 14 | ebb | 61.39 | 62.01 | 62.3 | - |
| 20071003 | 15 | flood | 61.19 | 61.23 | - | - |
| 20071004 | 15 | ebb | 61.52 | 61.6 | 61.76 | - |
| 20071004 | 16 | flood | 61.1 | 61.19 | 61.52 | - |
| 20071004 | 16 | ebb | 60.65 | 61.52 | - | - |
| 20071004 | 17 | flood | 61.15 | 61.35 | 61.39 | - |
| 20071005 | 17 | ebb | 60.77 | 60.81 | 60.9 | - |
| 20071005 | 18 | flood | 60.65 | 60.77 | 60.77 | 60.94 |
| 20071005 | 18 | ebb | 60.73 | 60.77 | 60.81 | 60.9 |
| 20071005 | 19 | flood | 60.49 | 60.49 | 60.49 | 60.49 |
| 20071006 | 19 | ebb | 60.24 | 60.28 | 61.27 | - |
| 20071006 | 20 | flood | 60.32 | 60.36 | 60.57 | - |
| 20071006 | 20 | ebb | 60.24 | 60.77 | 61.23 | - |
| 20071007 | 21 | flood | 60.65 | 60.69 | 60.9 | - |
| 20071007 | 21 | ebb | 60.24 | 60.32 | 60.73 | - |

## ALTUS Echosounder bottom distance [cm]

| Date | Tide no. | Phase | Signal 1 | Signal 2 | Signal 3 | Signal 4 |
|---|---|---|---|---|---|---|
| 20071007 | 22 | flood | 60.2 | 60.28 | 60.32 | - |
| 20071007 | 22 | ebb | 60.36 | 60.36 | - | - |
| 20071008 | 23 | flood | 60.2 | 60.86 | - | - |
| 20071008 | 23 | ebb | 60.28 | 60.4 | 60.77 | - |
| 20071008 | 24 | flood | 60.36 | 60.57 | 60.69 | - |
| 20071008 | 24 | ebb | 60.65 | 61.06 | - | - |
| 20071009 | 25 | flood | 60.4 | 60.45 | - | - |
| 20071009 | 25 | ebb | 60.9 | 61.89 | - | - |
| 20071009 | 26 | flood | 61.8 | 62.01 | 62.22 | - |
| 20071009 | 26 | ebb | 61.56 | 61.72 | 61.89 | 62.01 |
| 20071010 | 27 | flood | 62.26 | 62.26 | 62.3 | - |
| 20071010 | 27 | ebb | 61.84 | 61.89 | 61.89 | - |
| 20071010 | 28 | flood | 61.06 | 61.64 | - | - |
| 20071010 | 28 | ebb | 62.59 | 62.67 | 62.92 | - |
| 20071011 | 29 | flood | 62.3 | 62.34 | 62.46 | - |
| 20071011 | 29 | ebb | 62.3 | 62.46 | - | - |
| 20071011 | 30 | flood | 62.13 | 62.46 | - | - |
| 20071011 | 30 | ebb | 62.55 | 62.59 | 62.67 | - |
| 20071012 | 31 | flood | 62.38 | 62.38 | - | - |
| 20071012 | 31 | ebb | 62.5 | - | - | - |
| 20071012 | 32 | flood | 62.34 | 62.38 | 62.92 | - |
| 20071012 | 32 | ebb | 62.55 | 62.88 | 63.2 | - |
| 20071013 | 33 | flood | 62.59 | 62.63 | 62.75 | - |
| 20071013 | 33 | ebb | 62.46 | 62.67 | 62.67 | 62.79 |
| 20071013 | 34 | flood | 62.67 | 62.75 | 62.83 | - |
| 20071013 | 34 | ebb | 62.38 | 63 | - | - |
| 20071014 | 35 | flood | 62.42 | 62.59 | 63.45 | - |
| 20071014 | 35 | ebb | 62.46 | 62.92 | 62.96 | - |
| 20071014 | 36 | flood | 62.13 | - | - | - |
| 20071014 | 36 | ebb | 62.38 | 62.71 | 62.83 | - |
| 20071015 | 37 | flood | 62.63 | 62.83 | 63.08 | - |
| 20071015 | 37 | ebb | 62.71 | 62.92 | 63 | - |
| 20071015 | 38 | flood | 62.46 | 62.67 | 62.88 | - |
| 20071016 | 38 | ebb | 62.46 | 63.08 | - | - |
| 20071016 | 39 | flood | 62.34 | 62.42 | 62.59 | - |
| 20071016 | 39 | ebb | 62.63 | 63.04 | 63.16 | - |
| 20071016 | 40 | flood | 62.46 | 62.59 | - | - |
| 20071017 | 40 | ebb | 62.63 | 63.16 | - | - |
| 20071017 | 41 | flood | 62.59 | 63.08 | 63.12 | - |
| 20071017 | 41 | ebb | 57.89 | 58.1 | - | - |
| 20071017 | 42 | flood | 57.69 | 57.89 | - | - |
| 20071018 | 42 | ebb | 57.15 | - | - | - |

## ALTUS Echosounder bottom distance [cm]

| Date | Tide no. | Phase | Signal 1 | Signal 2 | Signal 3 | Signal 4 |
|---|---|---|---|---|---|---|
| 20071018 | 43 | flood | 57.73 | 58.92 | - | - |
| 20071018 | 43 | ebb | 57.44 | 57.81 | - | - |
| 20071018 | 44 | flood | 58.1 | 58.84 | - | - |
| 20071019 | 44 | ebb | 57.4 | 58.67 | - | - |
| 20071019 | 45 | flood | 57.64 | 57.73 | 57.89 | - |
| 20071019 | 45 | ebb | 57.6 | 57.69 | 57.85 | - |
| 20071019 | 46 | flood | 58.3 | 58.55 | - | - |
| 20071020 | 46 | ebb | 57.6 | 58.1 | - | - |
| 20071020 | 47 | flood | 57.77 | 58.14 | - | - |
| 20071020 | 47 | ebb | 57.6 | 57.93 | - | - |
| 20071020 | 48 | flood | 57.89 | 58.06 | - | - |
| 20071021 | 48 | ebb | 57.4 | 57.44 | - | - |
| 20071021 | 49 | flood | 57.52 | 58.1 | - | - |
| 20071021 | 49 | ebb | 57.31 | 57.89 | 58.1 | - |
| 20071021 | 50 | flood | 57.44 | 58.02 | - | - |
| 20071022 | 50 | ebb | 57.85 | 58.02 | - | - |
| 20071022 | 51 | flood | 57.52 | 58.14 | - | - |
| 20071022 | 51 | ebb | 58.18 | 58.63 | - | - |
| 20071023 | 52 | flood | 57.81 | 58.06 | - | - |
| 20071023 | 52 | ebb | 57.19 | - | - | - |
| 20071023 | 53 | flood | 57.73 | 57.85 | - | - |
| 20071023 | 53 | ebb | 57.36 | 57.56 | - | - |
| 20071024 | 54 | flood | 57.81 | 58.14 | - | - |
| 20071024 | 54 | ebb | 57.31 | 57.6 | - | - |
| 20071024 | 55 | flood | 59.04 | - | - | - |
| 20071024 | 55 | ebb | 57.85 | - | - | - |
| 20071025 | 56 | flood | 58.63 | 58.72 | - | - |
| 20071025 | 56 | ebb | 57.48 | 57.6 | - | - |
| 20071025 | 57 | flood | 58.3 | - | - | - |
| 20071025 | 57 | ebb | 57.4 | 57.48 | - | - |
| 20071026 | 58 | flood | 57.77 | - | - | - |
| 20071026 | 58 | ebb | 57.64 | 57.77 | - | - |
| 20071026 | 59 | flood | 58.02 | - | - | - |
| 20071026 | 59 | ebb | 58.02 | 58.06 | - | - |
| 20071027 | 60 | flood | 59.25 | - | - | - |
| 20071027 | 60 | ebb | 57.03 | 57.19 | - | - |
| 20071027 | 61 | flood | 58.34 | 59.21 | - | - |
| 20071027 | 61 | ebb | 57.19 | 57.77 | - | - |
| 20071028 | 62 | flood | 58.18 | - | - | - |
| 20071028 | 62 | ebb | 56.98 | 57.85 | - | - |
| 20071028 | 63 | flood | 58.18 | - | - | - |
| 20071028 | 63 | ebb | 57.4 | 57.48 | - | - |

## ALTUS Echosounder bottom distance [cm]

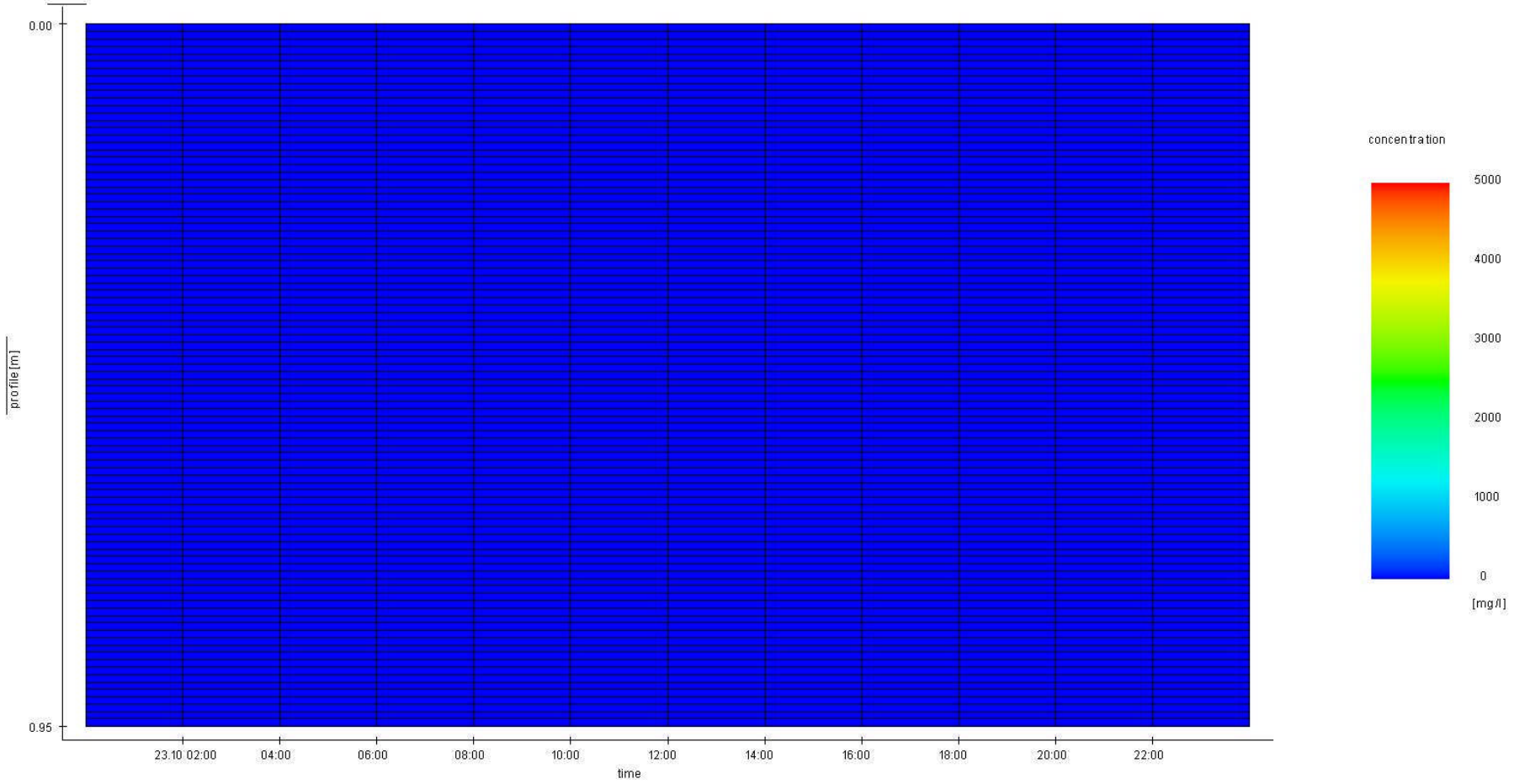
| Date | Tide no. | Phase | Signal 1 | Signal 2 | Signal 3 | Signal 4 |
|---|---|---|---|---|---|---|
| 20071029 | 64 | flood | 58.8 | 58.92 | - | - |
| 20071029 | 64 | ebb | 57.48 | - | - | - |
| 20071029 | 65 | flood | 58.43 | - | - | - |
| 20071030 | 65 | ebb | 56.9 | 57.31 | - | - |
| 20071030 | 66 | flood | 58.59 | - | - | - |
| 20071030 | 66 | ebb | 56.94 | 57.73 | - | - |
| 20071030 | 67 | flood | 58.43 | - | - | - |
| 20071031 | 67 | ebb | 56.61 | 56.86 | 56.94 | - |
| 20071031 | 68 | flood | - | - | - | - |
| 20071031 | 68 | ebb | 57.4 | 58.22 | - | - |
| 20071031 | 69 | flood | 58.26 | - | - | - |
| 20071101 | 69 | ebb | 57.31 | - | - | - |
| 20071101 | 70 | flood | 57.52 | 58.47 | - | - |
| 20071101 | 70 | ebb | 57.19 | 57.48 | - | - |
| 20071101 | 71 | flood | 58.22 | - | - | - |
| 20071102 | 71 | ebb | 57.23 | 58.76 | - | - |
| 20071102 | 72 | flood | 57.89 | 58.8 | - | - |
| 20071102 | 72 | ebb | 57.6 | 57.73 | - | - |
| 20071102 | 73 | flood | 58.43 | - | - | - |
| 20071103 | 73 | ebb | 57.44 | - | - | - |
| 20071103 | 74 | flood | 58.39 | 58.51 | - | - |
| 20071103 | 74 | ebb | 57.23 | 57.6 | - | - |
| 20071103 | 75 | flood | 57.6 | 58.63 | - | - |
| 20071104 | 75 | ebb | 57.44 | 57.52 | - | - |
| 20071104 | 76 | flood | 58.72 | 58.84 | 59 | - |
| 20071104 | 76 | ebb | 57.19 | - | - | - |
| 20071104 | 77 | flood | 59.33 | - | - | - |
| 20071105 | 77 | ebb | 57.48 | 57.64 | - | - |
| 20071105 | 78 | flood | 59 | - | - | - |
| 20071105 | 78 | ebb | 58.06 | - | - | - |
| 20071106 | 79 | flood | 58.39 | 58.92 | - | - |
| 20071106 | 79 | ebb | 57.31 | - | - | - |
| 20071106 | 80 | flood | 58.47 | 58.84 | - | - |
| 20071106 | 80 | ebb | 57.31 | 57.69 | - | - |
| 20071107 | 81 | flood | 58.22 | 58.8 | - | - |
| 20071107 | 81 | ebb | 56.94 | - | - | - |
| 20071107 | 82 | flood | 57.89 | 59 | - | - |
| 20071107 | 82 | ebb | 57.27 | 57.73 | - | - |
| 20071108 | 83 | flood | 58.14 | 58.84 | - | - |
| 20071108 | 83 | ebb | 58.06 | 58.14 | - | - |
| 20071122 | 84 | flood | 38.7 | 39.07 | - | - |
| 20071122 | 84 | ebb | 38.53 | 38.86 | 39.03 | 39.15 |

## ALTUS Echosounder bottom distance [cm]

| Date | Tide no. | Phase | Signal 1 | Signal 2 | Signal 3 | Signal 4 |
|---|---|---|---|---|---|---|
| 20071122 | 85 | flood | 38.53 | 38.74 | - | - |
| 20071122 | 85 | ebb | 38.41 | 38.7 | - | - |
| 20071123 | 86 | flood | 38.33 | - | - | - |
| 20071123 | 86 | ebb | 38.2 | 38.37 | 38.58 | - |
| 20071123 | 87 | flood | 38.24 | - | - | - |
| 20071123 | 87 | ebb | 38 | 38.24 | 38.53 | - |
| 20071124 | 88 | flood | 37.79 | 38.16 | - | - |
| 20071124 | 88 | ebb | 37.92 | - | - | - |
| 20071124 | 89 | flood | 37.55 | 37.83 | - | - |
| 20071124 | 89 | ebb | 37.55 | 37.63 | - | - |
| 20071125 | 90 | flood | 37.3 | 37.79 | - | - |
| 20071125 | 90 | ebb | 37.34 | 37.92 | - | - |
| 20071125 | 91 | flood | 37.17 | 37.63 | - | - |
| 20071125 | 91 | ebb | 37.3 | 37.46 | - | - |
| 20071126 | 92 | flood | 37.3 | 37.59 | - | - |
| 20071126 | 92 | ebb | 37.3 | - | - | - |
| 20071126 | 93 | flood | 37.26 | - | - | - |
| 20071126 | 93 | ebb | 36.1 | 37.38 | - | - |
| 20071127 | 94 | flood | 37.17 | 37.26 | - | - |
| 20071127 | 94 | ebb | 37.38 | - | - | - |
| 20071127 | 95 | flood | 37.17 | 37.46 | - | - |
| 20071127 | 95 | ebb | 36.06 | 37.34 | - | - |
| 20071128 | 96 | flood | 37.13 | 37.22 | 37.46 | - |
| 20071128 | 96 | ebb | 33.02 | 37.67 | - | - |
| 20071128 | 97 | flood | 37.05 | 37.34 | - | - |
| 20071129 | 97 | ebb | 32.97 | 37.26 | - | - |
| 20071129 | 98 | flood | 36.89 | 37.13 | - | - |
| 20071129 | 98 | ebb | 32.97 | - | - | - |
| 20071129 | 99 | flood | 37.26 | - | - | - |
| 20071130 | 99 | ebb | 32.93 | - | - | - |
| 20071130 | 100 | flood | 36.8 | 37.38 | - | - |
| 20071130 | 100 | ebb | 32.97 | 37.46 | 37.67 | - |
| 20071130 | 101 | flood | 36.84 | - | - | - |
| 20071201 | 101 | ebb | 36.84 | - | - | - |
| 20071201 | 102 | flood | 37.01 | 37.09 | - | - |
| 20071201 | 102 | ebb | 37.05 | 37.17 | - | - |
| 20071201 | 103 | flood | 37.01 | 37.05 | - | - |
| 20071202 | 103 | ebb | 37.42 | - | - | - |
| 20071202 | 104 | flood | 37.01 | 37.34 | - | - |
| 20071202 | 104 | ebb | 36.93 | 37.38 | - | - |
| 20071202 | 105 | flood | 36.97 | 37.05 | - | - |
| 20071203 | 105 | ebb | 37.09 | 37.13 | - | - |

| ALTUS Echosounder bottom distance [cm] | | | | | | |
|---|---|---|---|---|---|---|
| **Date** | **Tide no.** | **Phase** | **Signal 1** | **Signal 2** | **Signal 3** | **Signal 4** |
| 20071203 | 106 | flood | 36.76 | 37.38 | - | - |
| 20071203 | 106 | ebb | 32.93 | - | - | - |
| 20071203 | 107 | flood | 36.8 | 37.34 | - | - |
| 20071204 | 107 | ebb | 32.77 | 37.46 | - | - |
| 20071204 | 108 | flood | 37.05 | 37.09 | - | - |
| 20071204 | 108 | ebb | 32.89 | 37.5 | - | - |
| 20071204 | 109 | flood | 36.93 | 37.13 | - | - |
| 20071205 | 109 | ebb | 32.85 | 37.26 | 37.3 | - |

# 11283 Accretion Deurganckok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

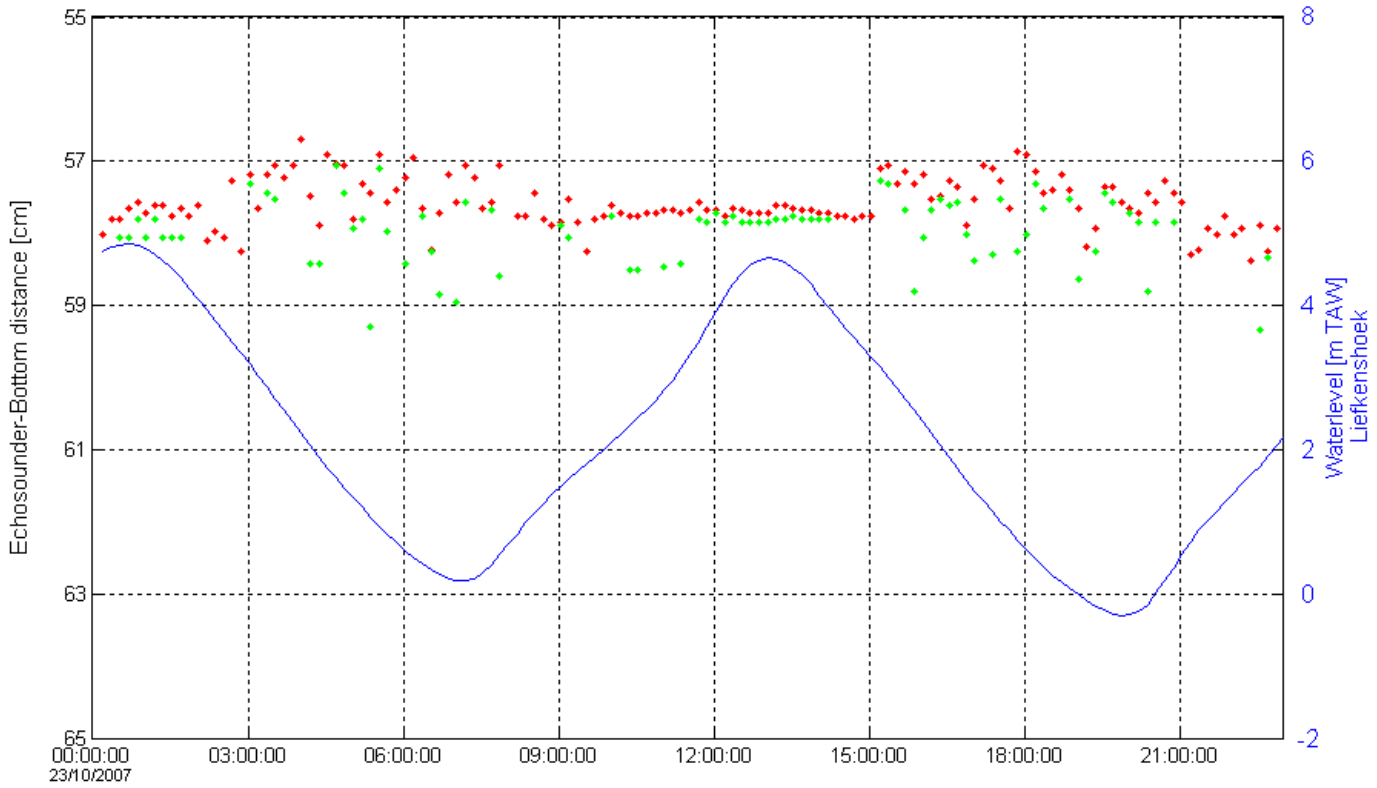
| Location: | Date: |
|---|---|
| Deurganckdok CDW | Avg Tide 23/10 – 24/10 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok CDW

Date:
Avg Tide 23/10 – 24/10

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

## C.2 Sill frame

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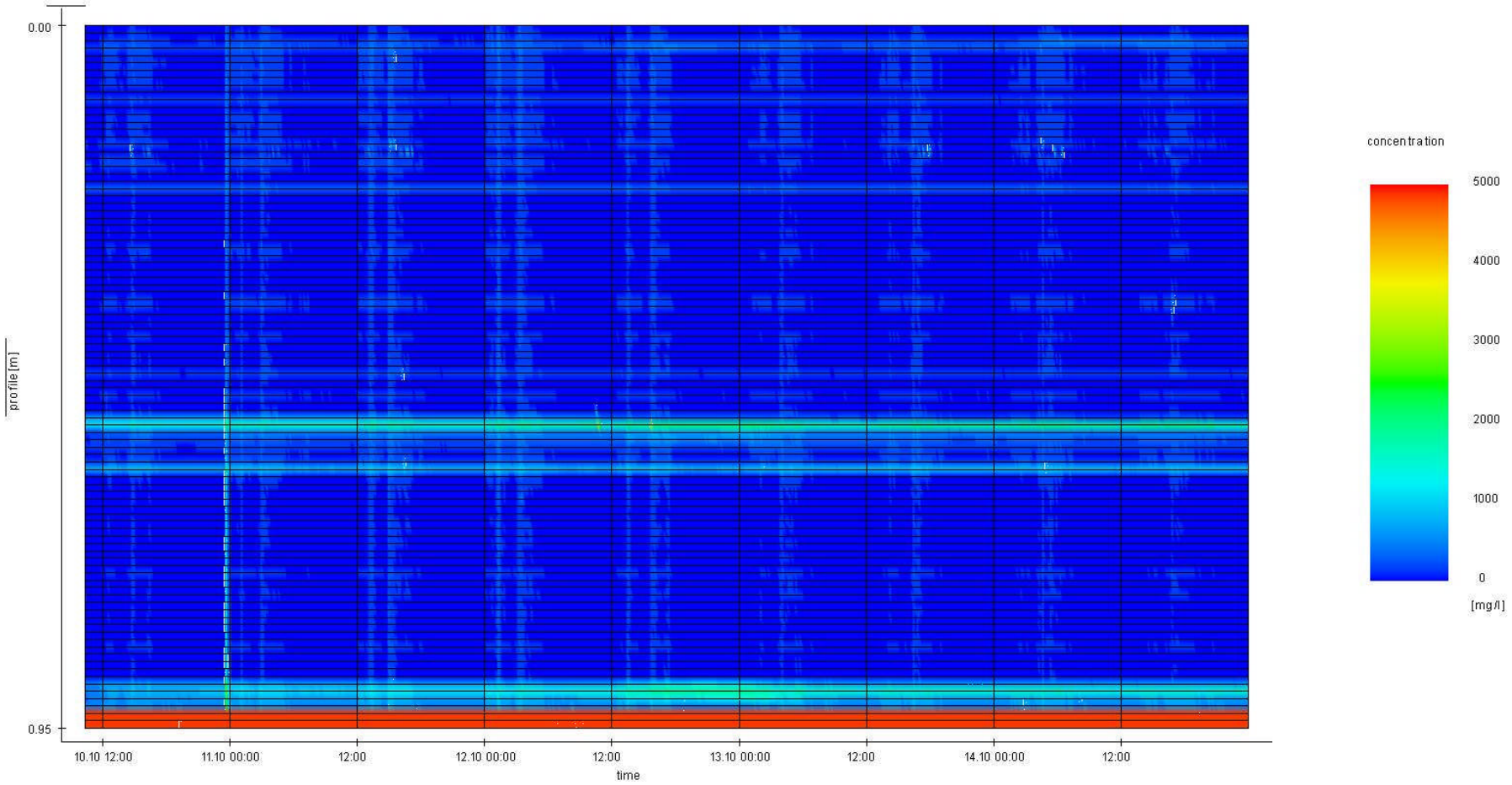
# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

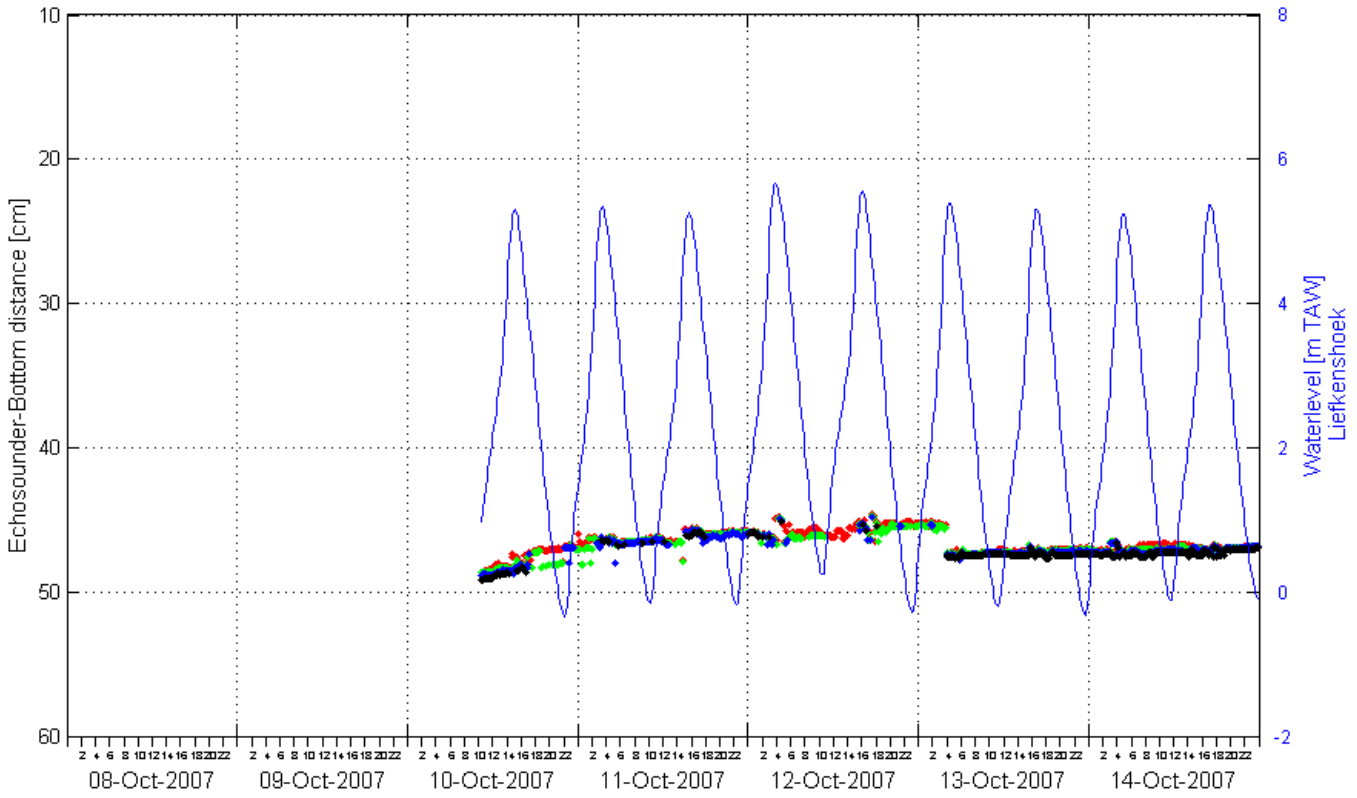
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 10/10/2007 – 14/10/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

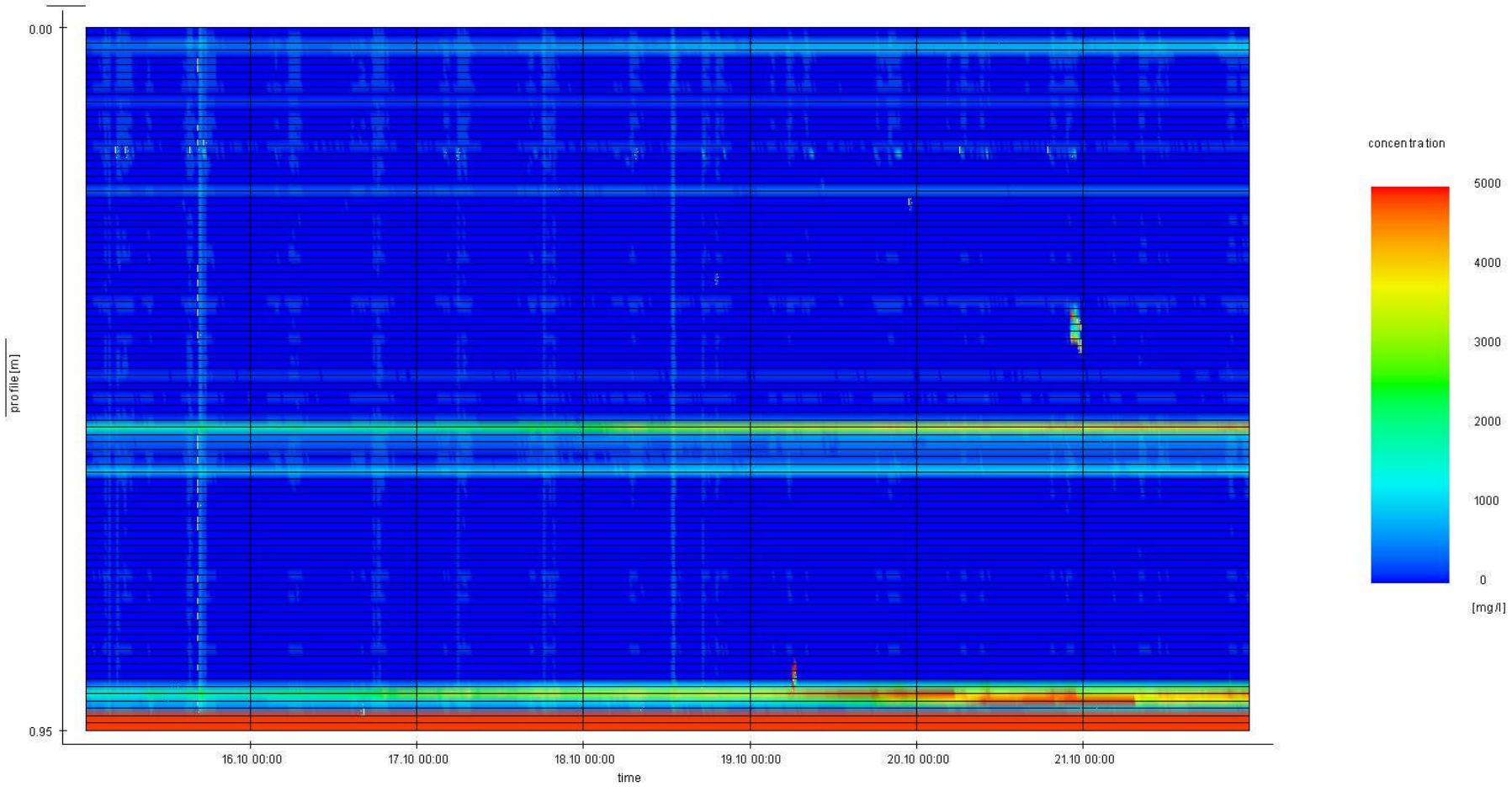
Date:
10/10/2007 – 14/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

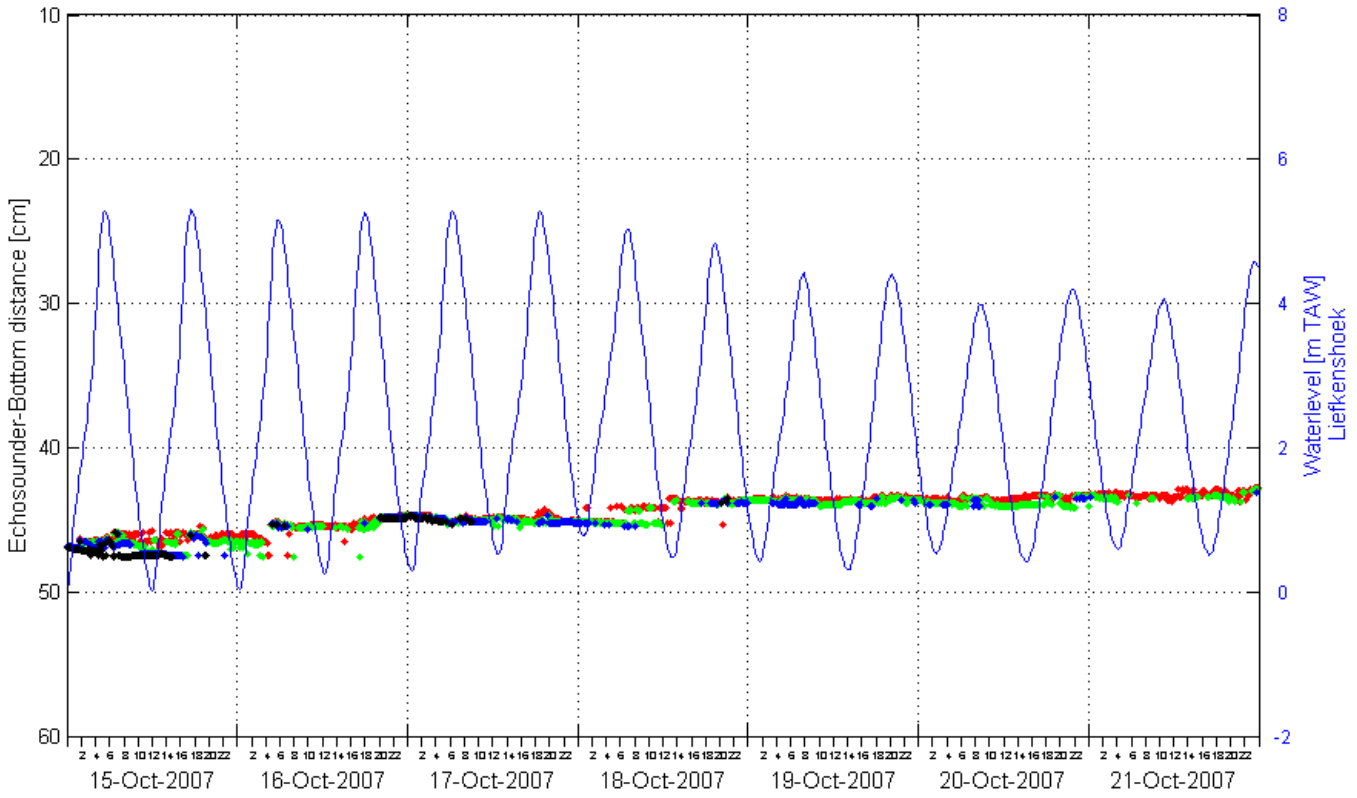
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 15/10/2007 – 21/10/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

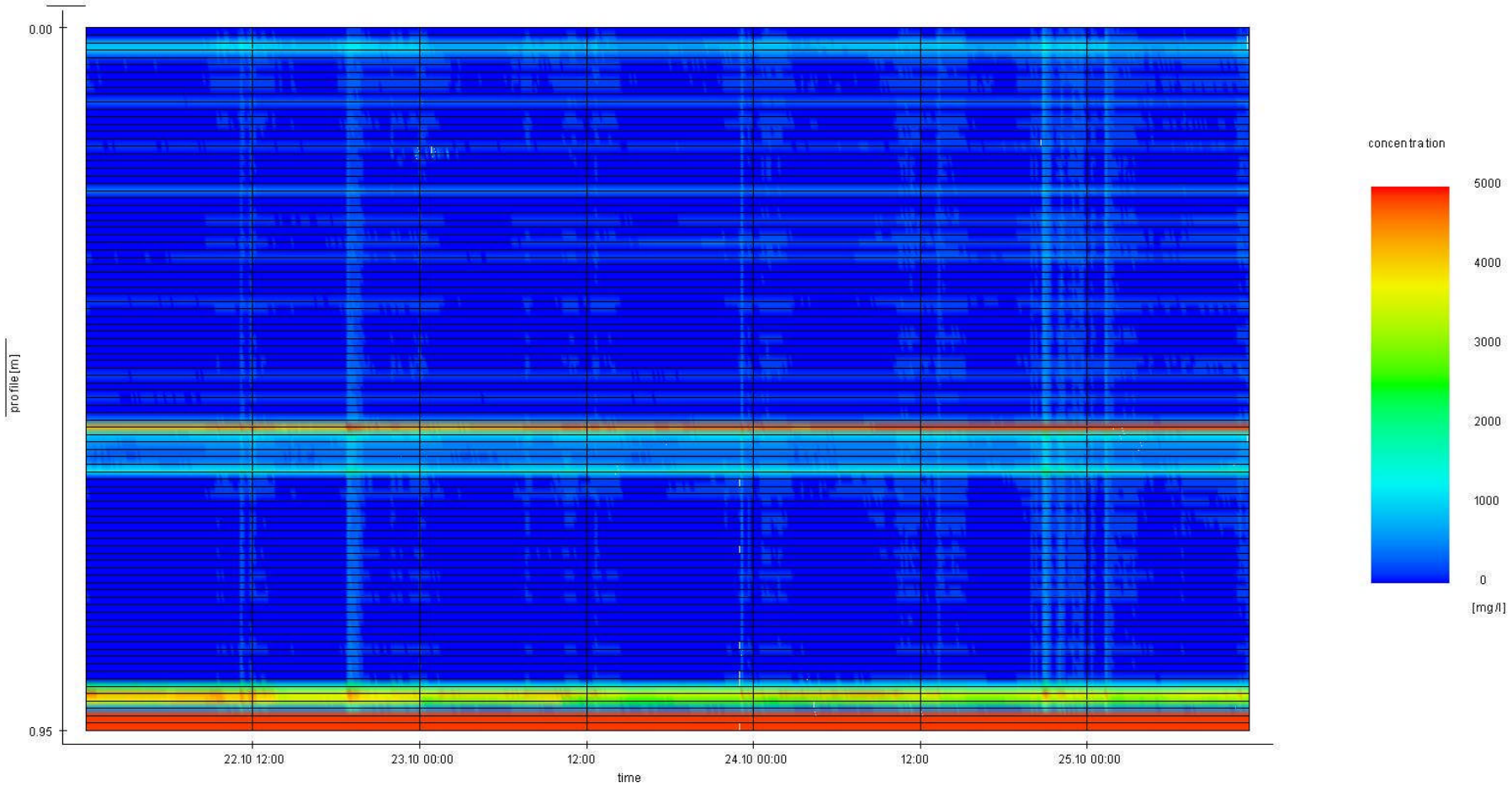
Date:
15/10/2007 – 21/10/2007

*Data processed by:* IMDC

*In association with:* wl | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

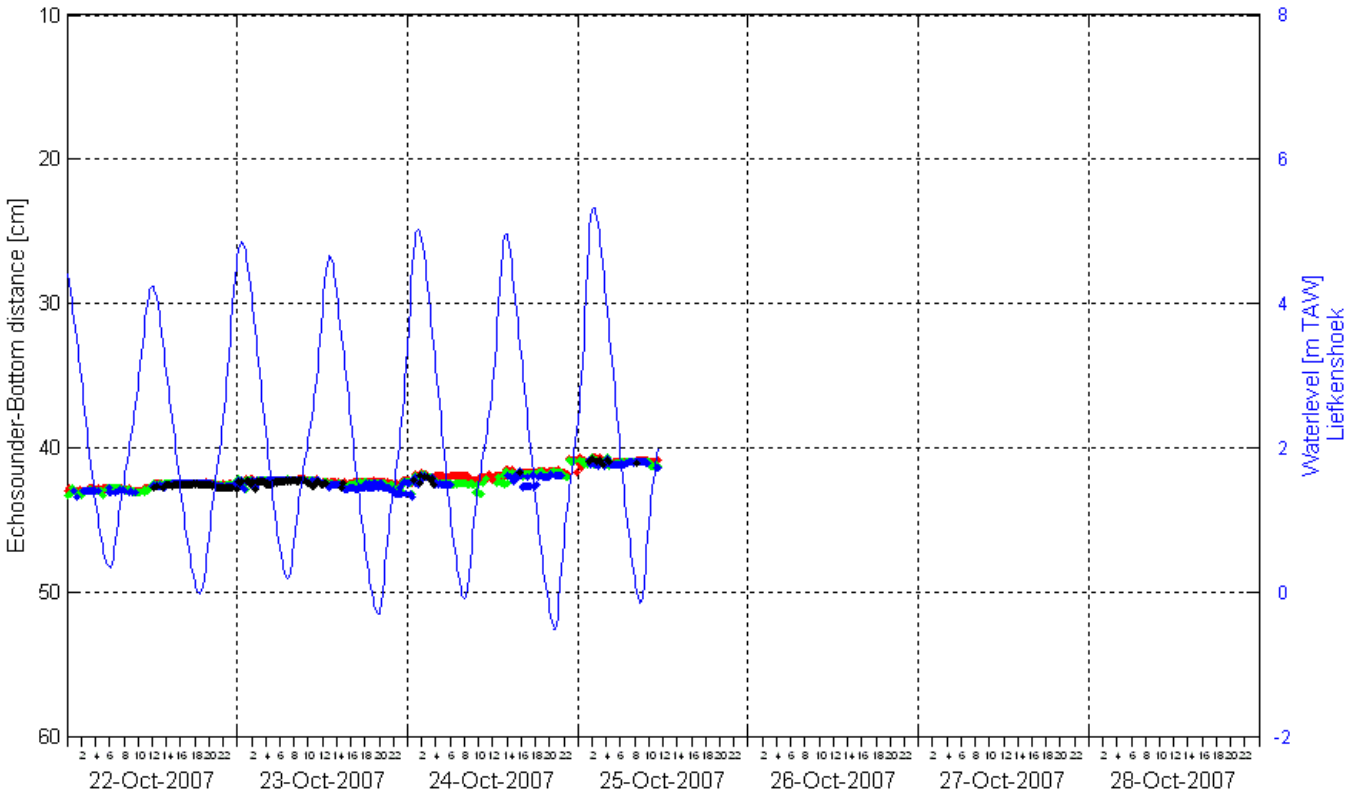
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 22/10/2007 – 25/10/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

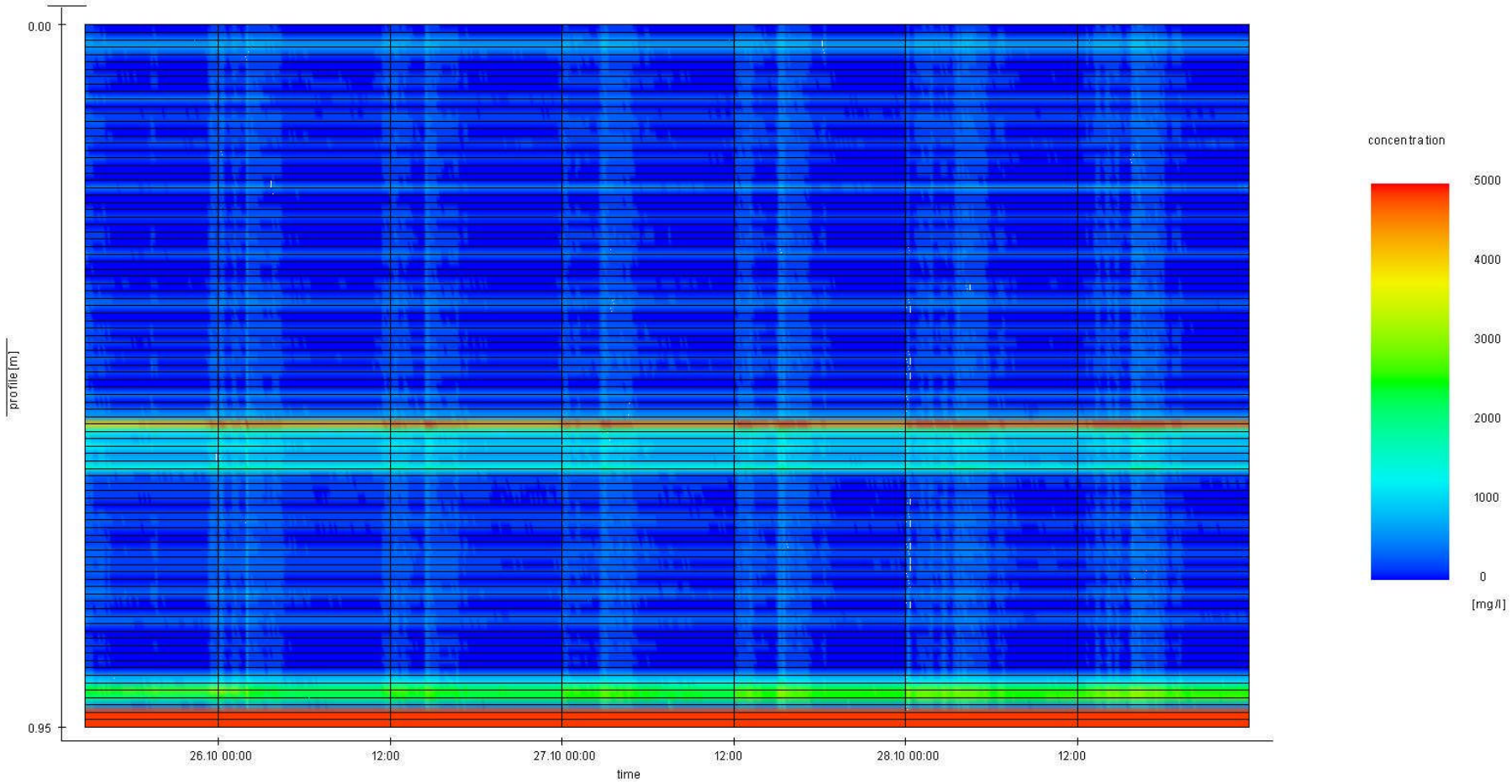
Date:
22/10/2007 – 25/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

Location:
Deurganckdok Sill

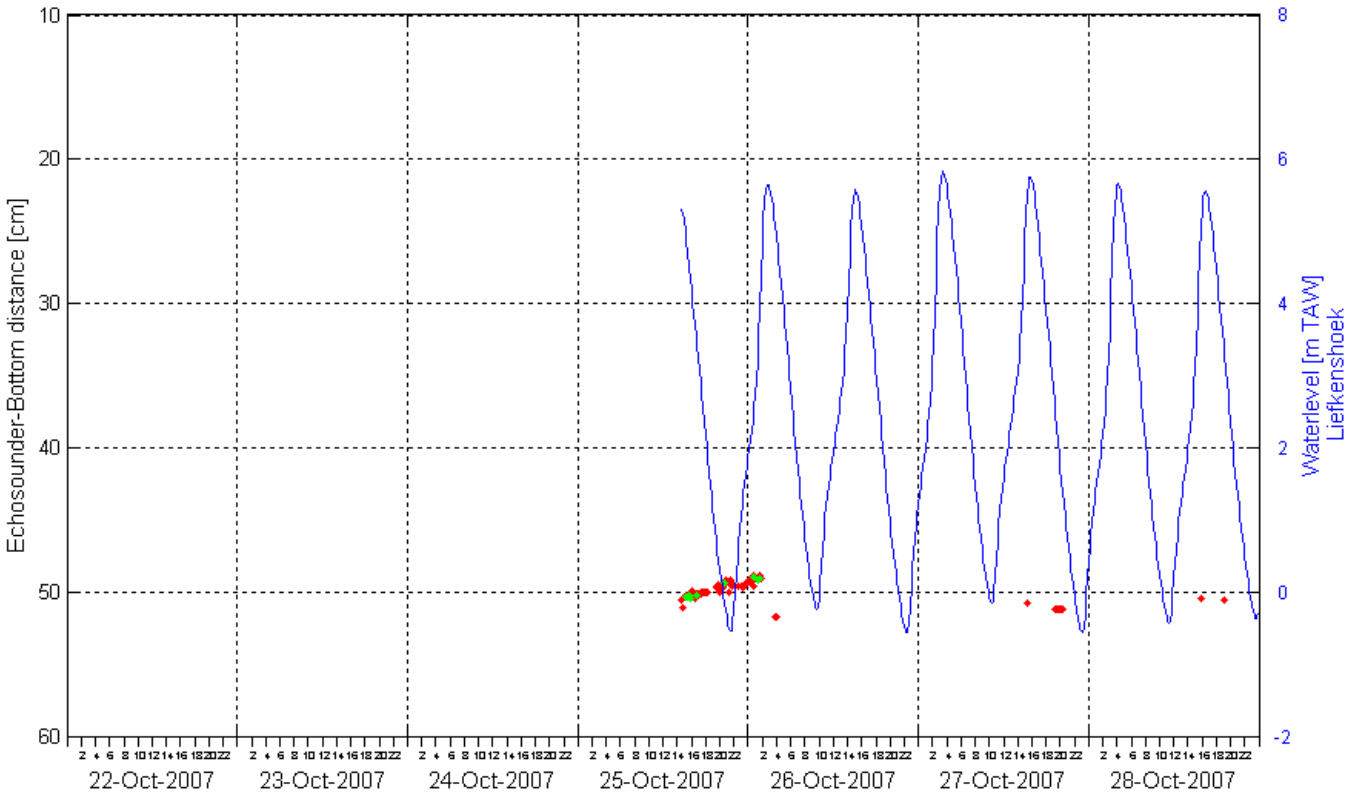
Date:
25/10/2007 – 28/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

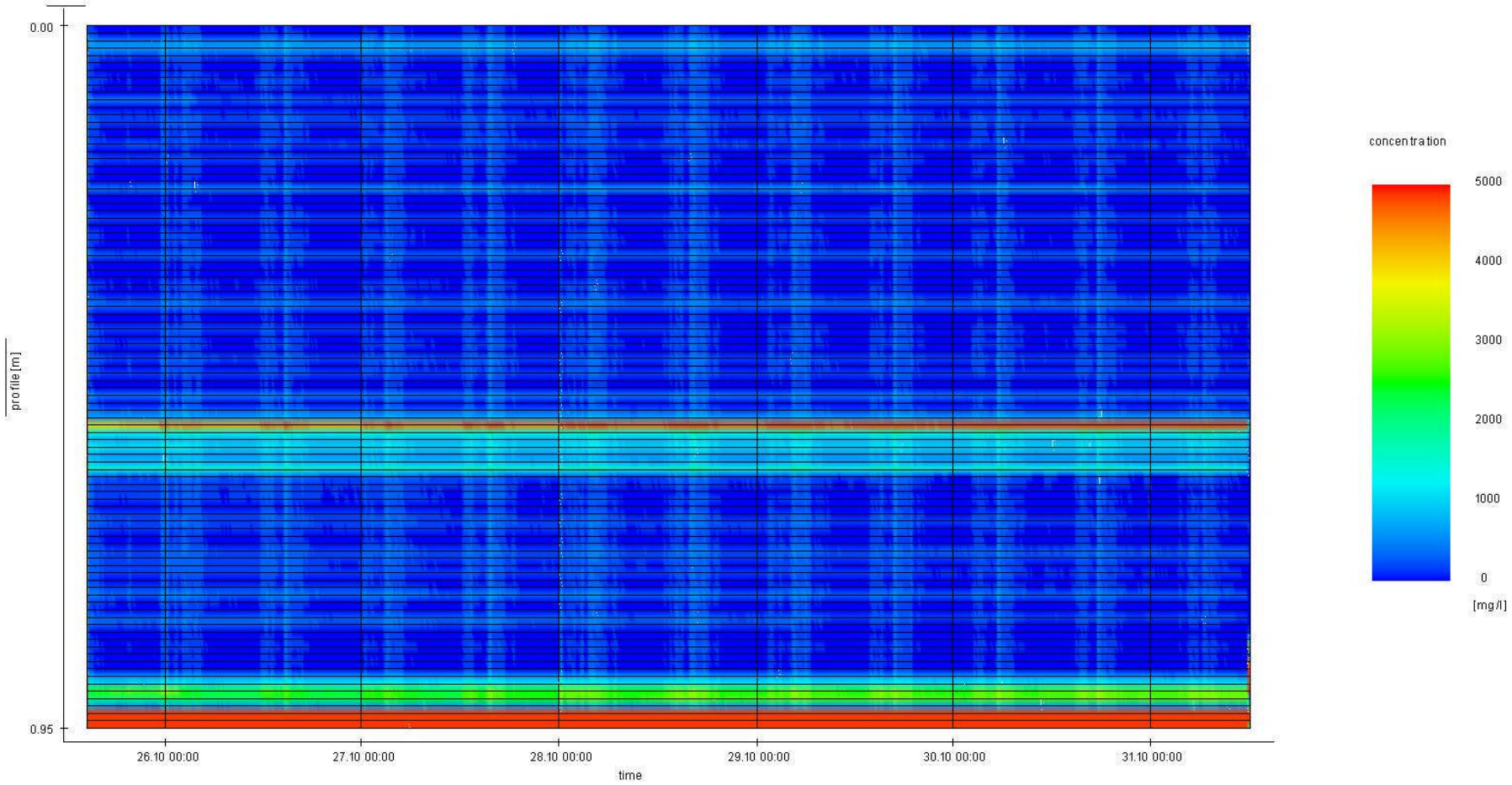
Date:
25/10/2007 – 28/10/2007

*Data processed by:* IMDC

*In association with:* wl | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

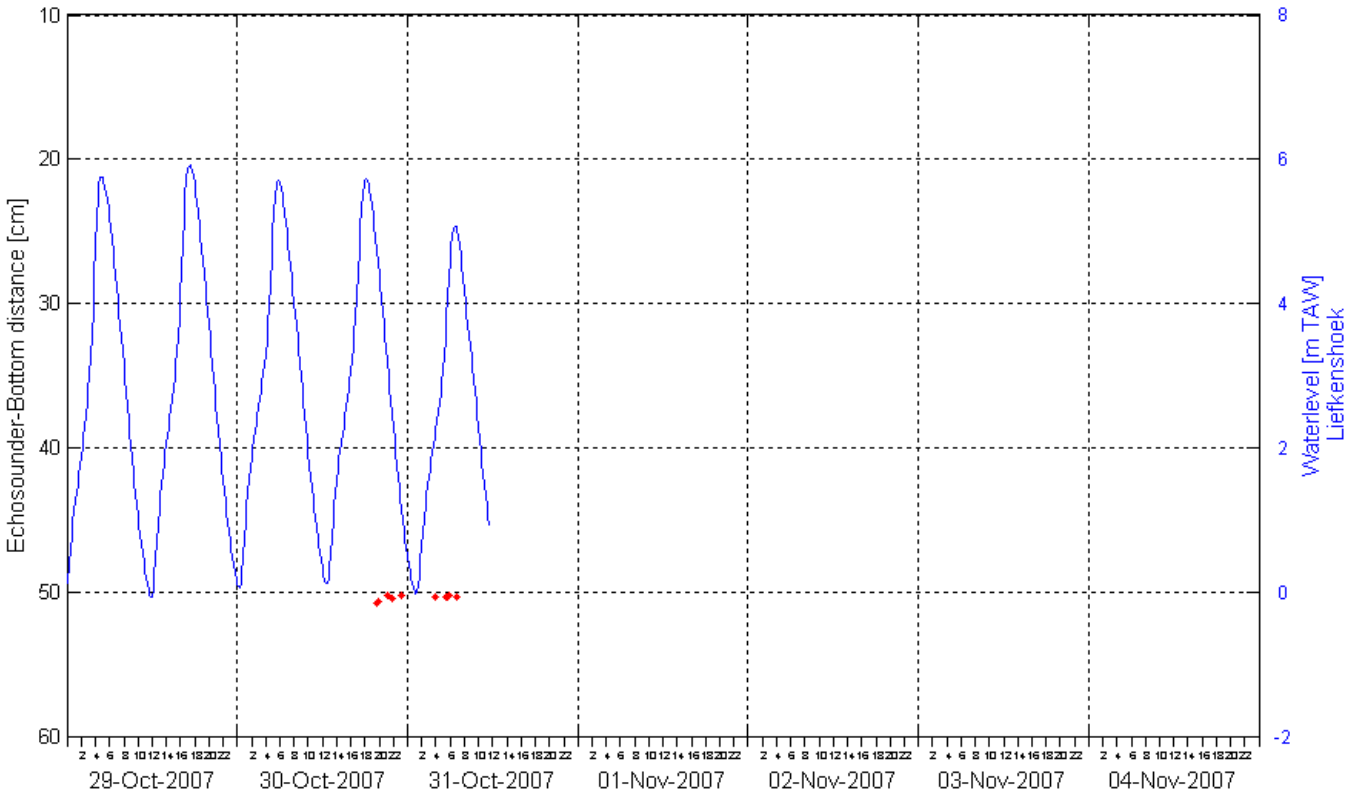
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 28/10/2007 – 31/10/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

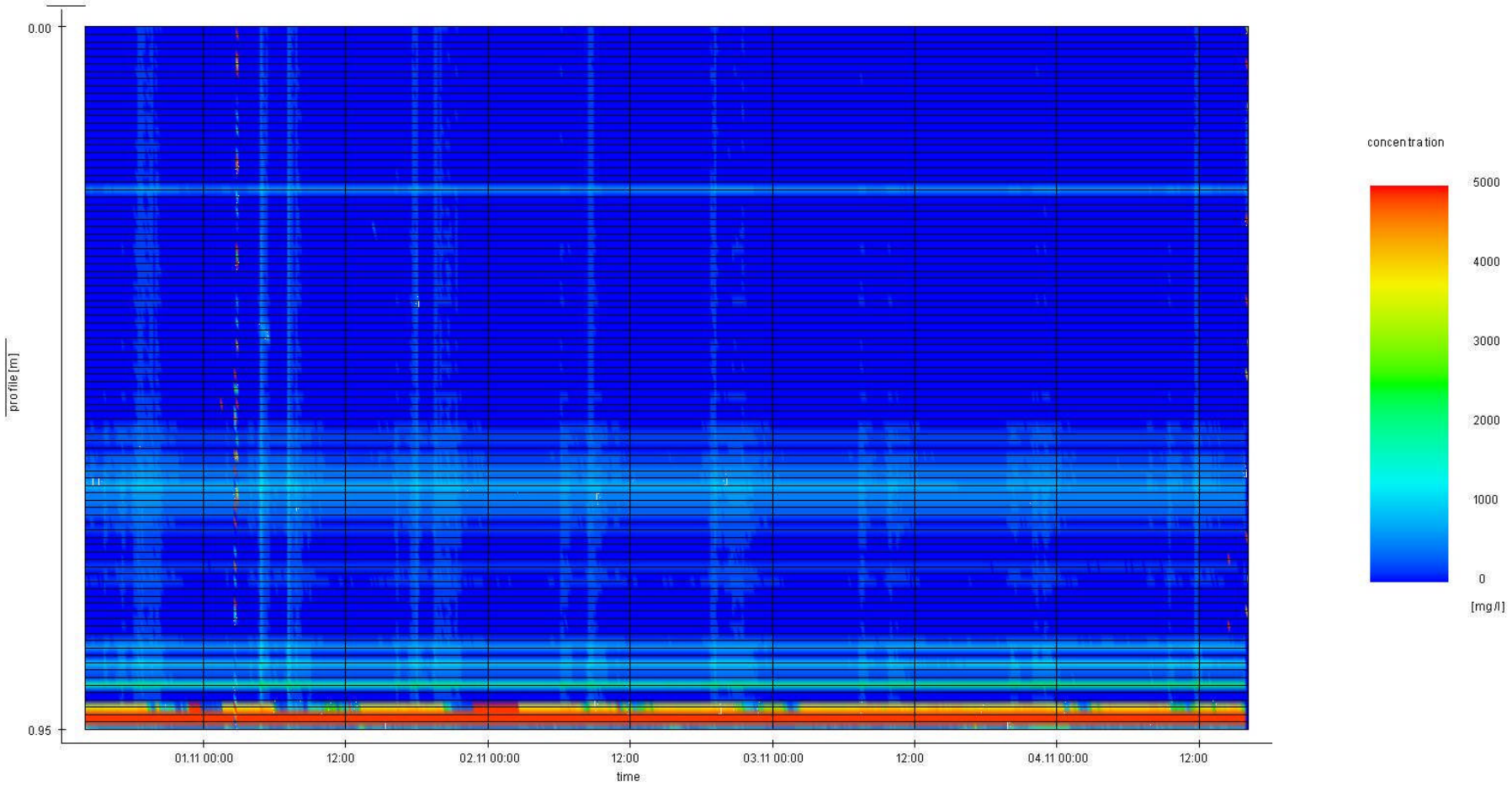
Date:
28/10/2007 – 31/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

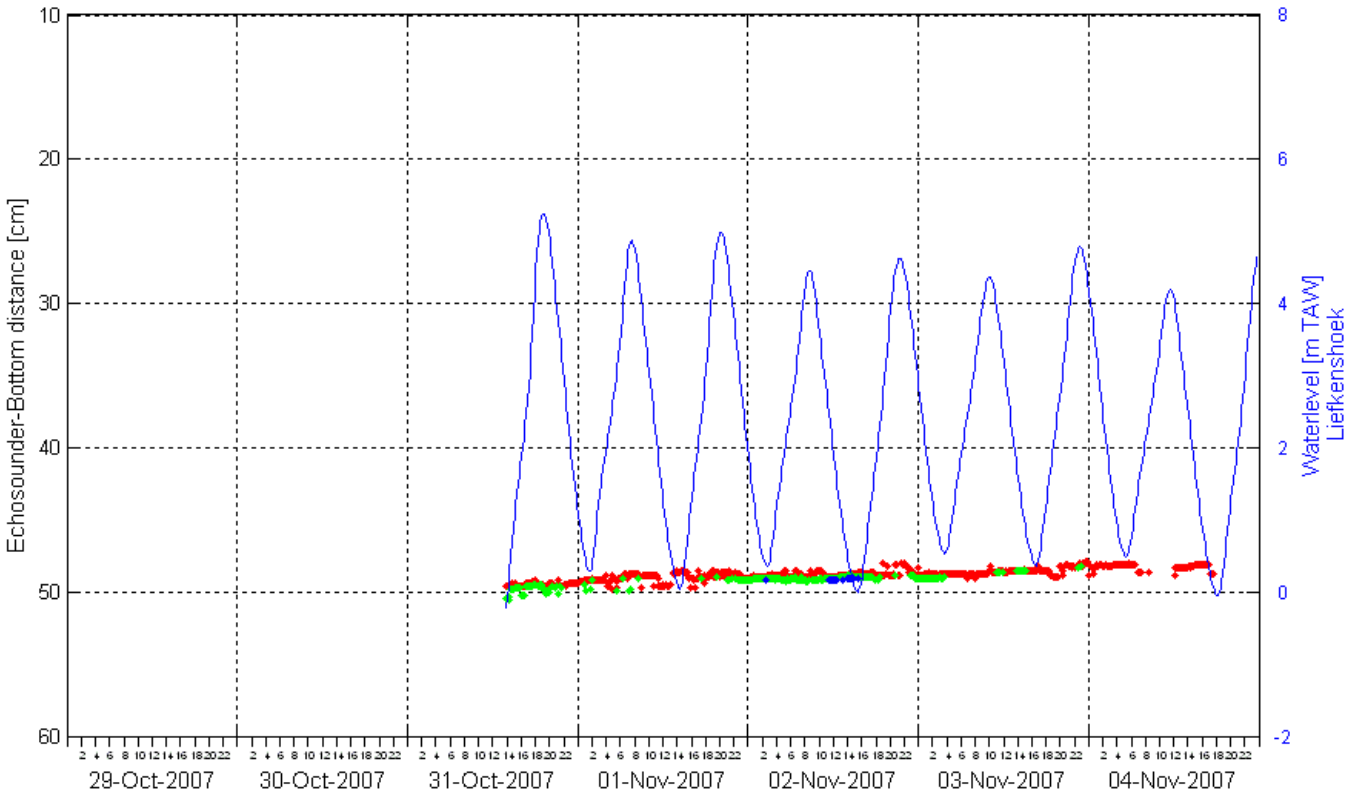
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 31/10/2007 – 04/11/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

Date:
31/10/2007 – 04/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

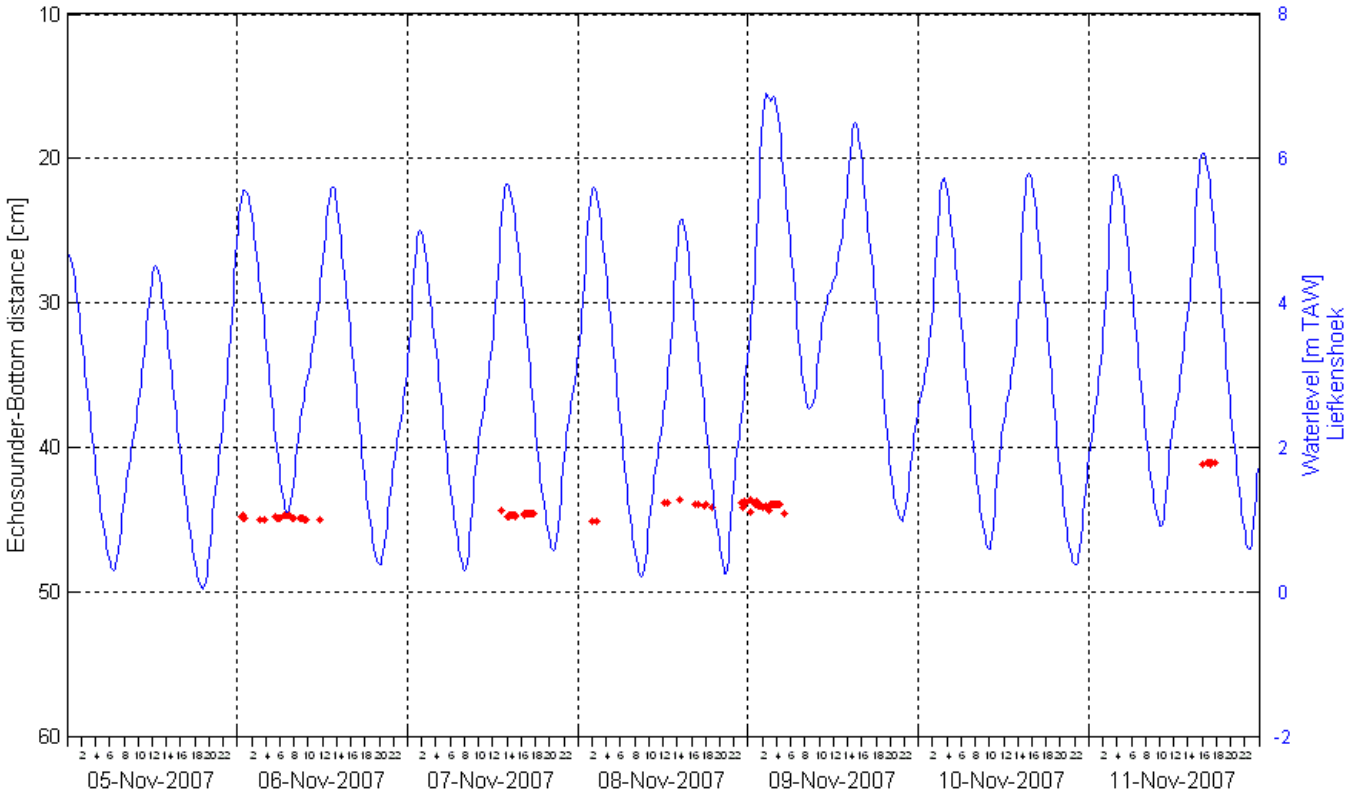
# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007

NO DATA

| Time series suspended sediment concentration ARGUS ASM-IV | | *Data processed by:* IMDC |
|---|---|---|
| Location: Deurganckdok Sill | Date: 05/11/2007 – 11/11/2007 | *In association with:* WL \| delft hydraulics, GEMS International |

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

Date:
05/11/2007 – 11/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007

NO DATA

Time series suspended sediment concentration
ARGUS ASM-IV

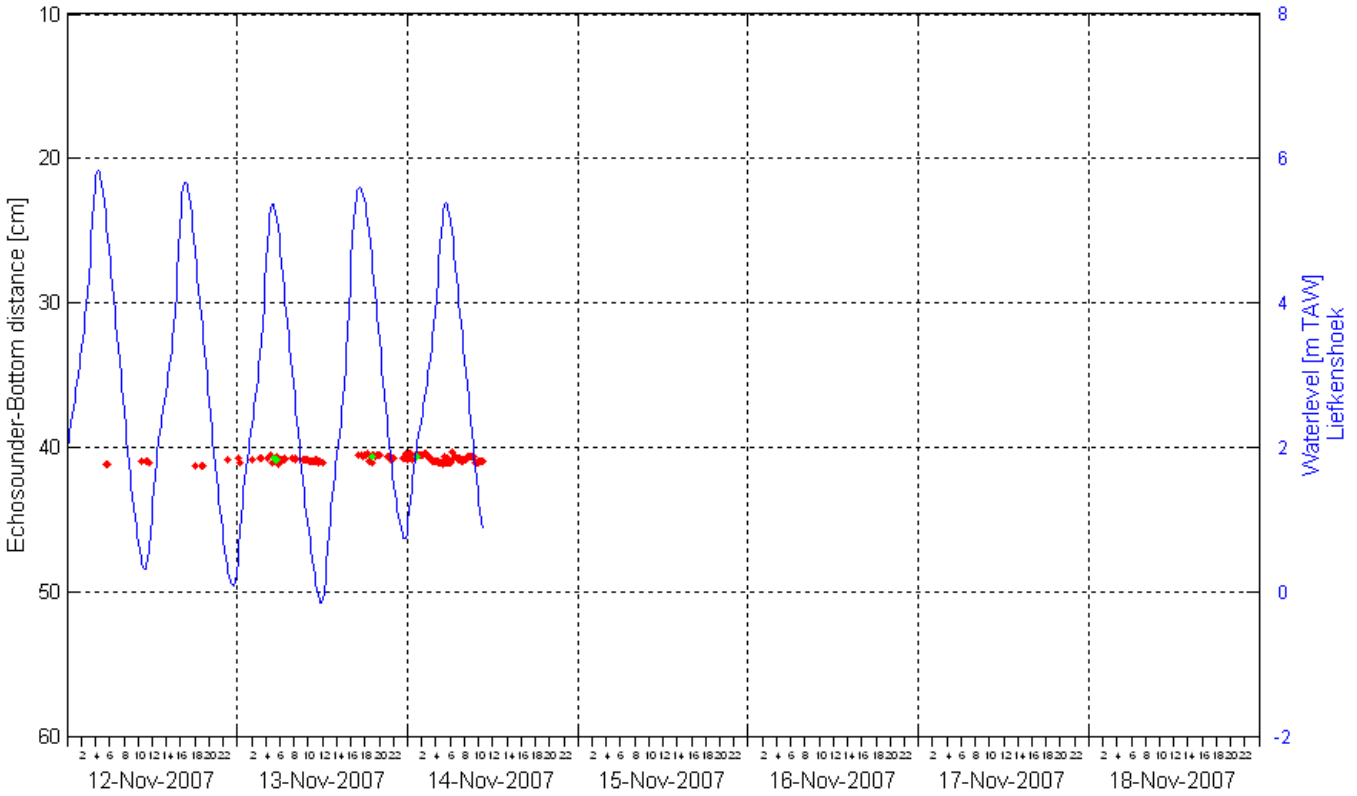
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 12/11/2007 – 14/11/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

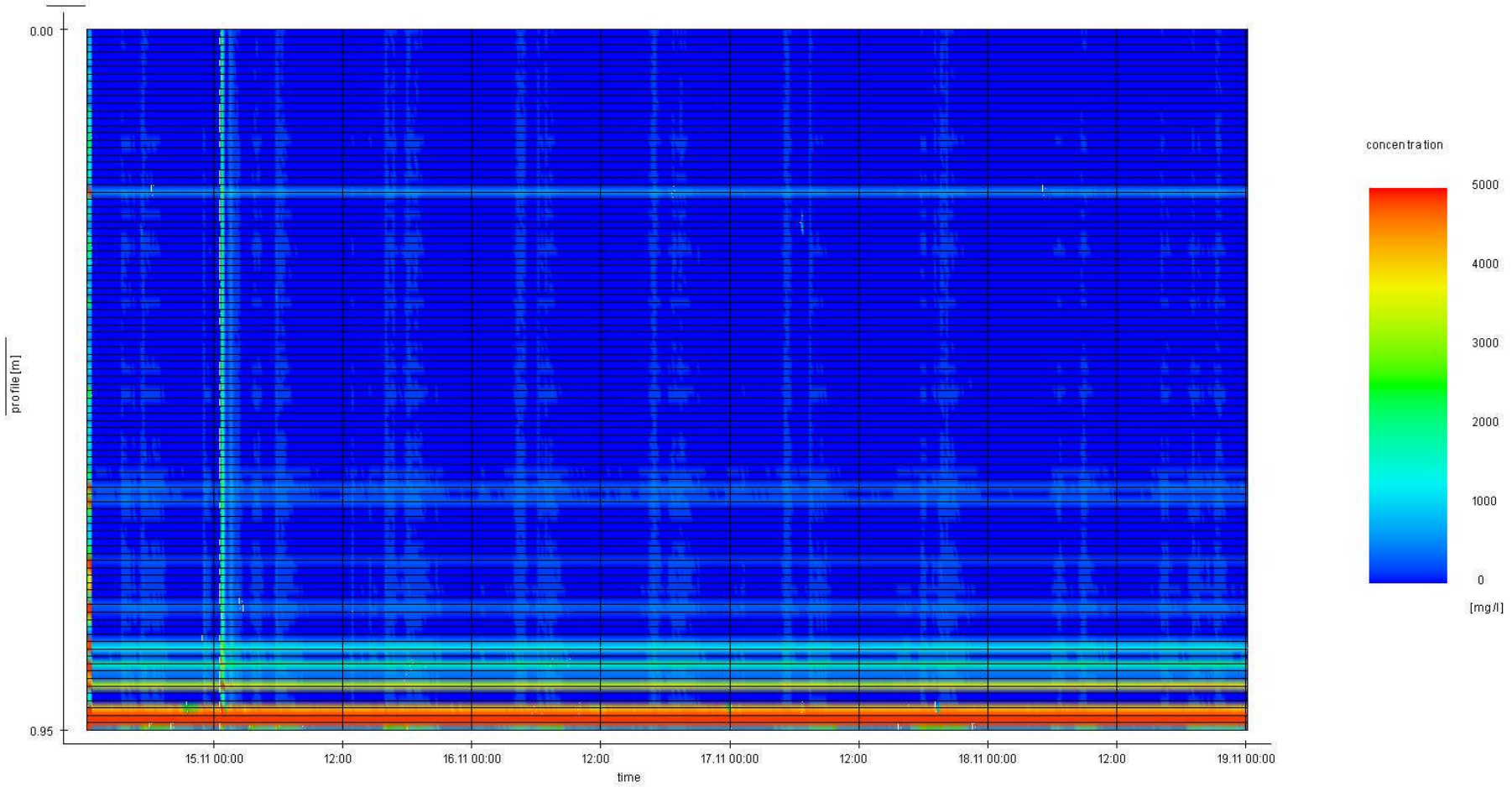
Date:
12/11/2007 – 14/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

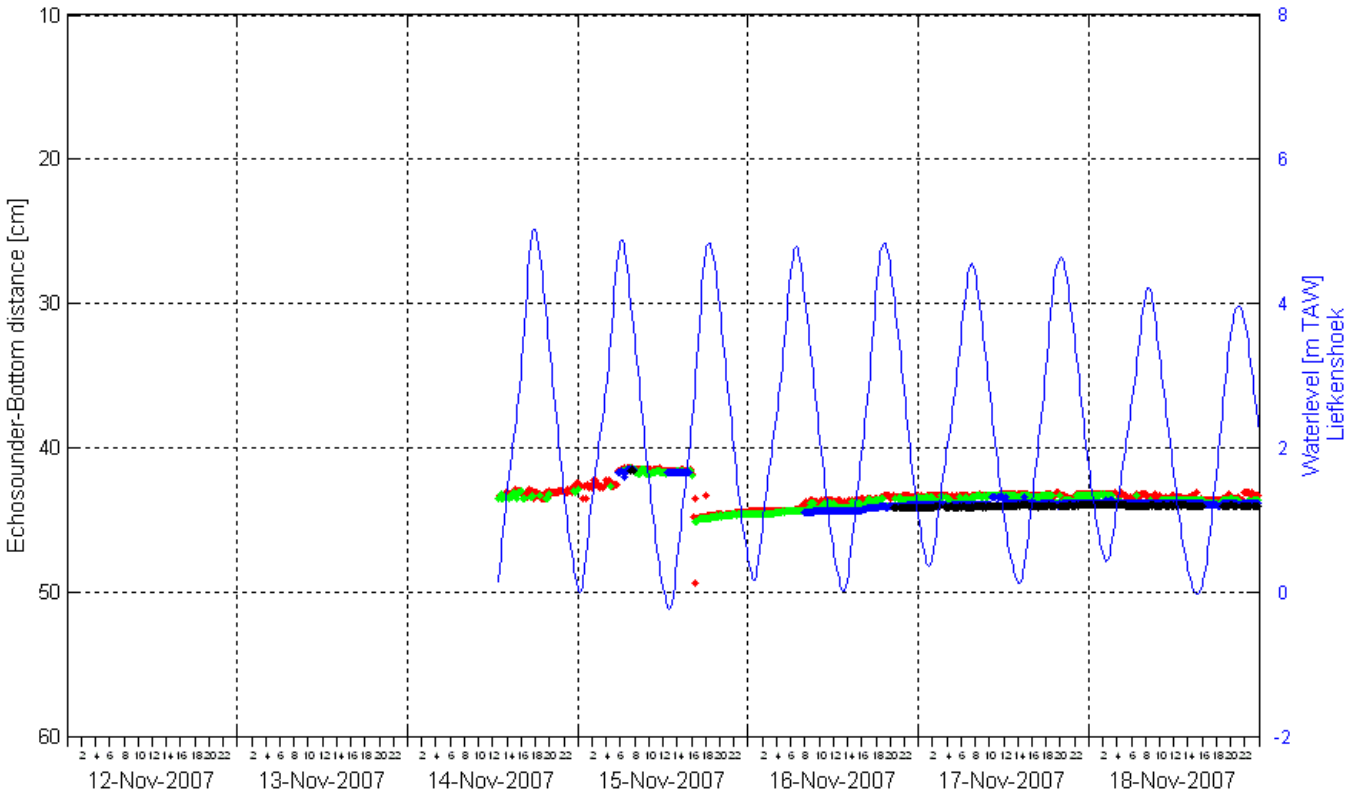
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 14/11/2007 – 18/11/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

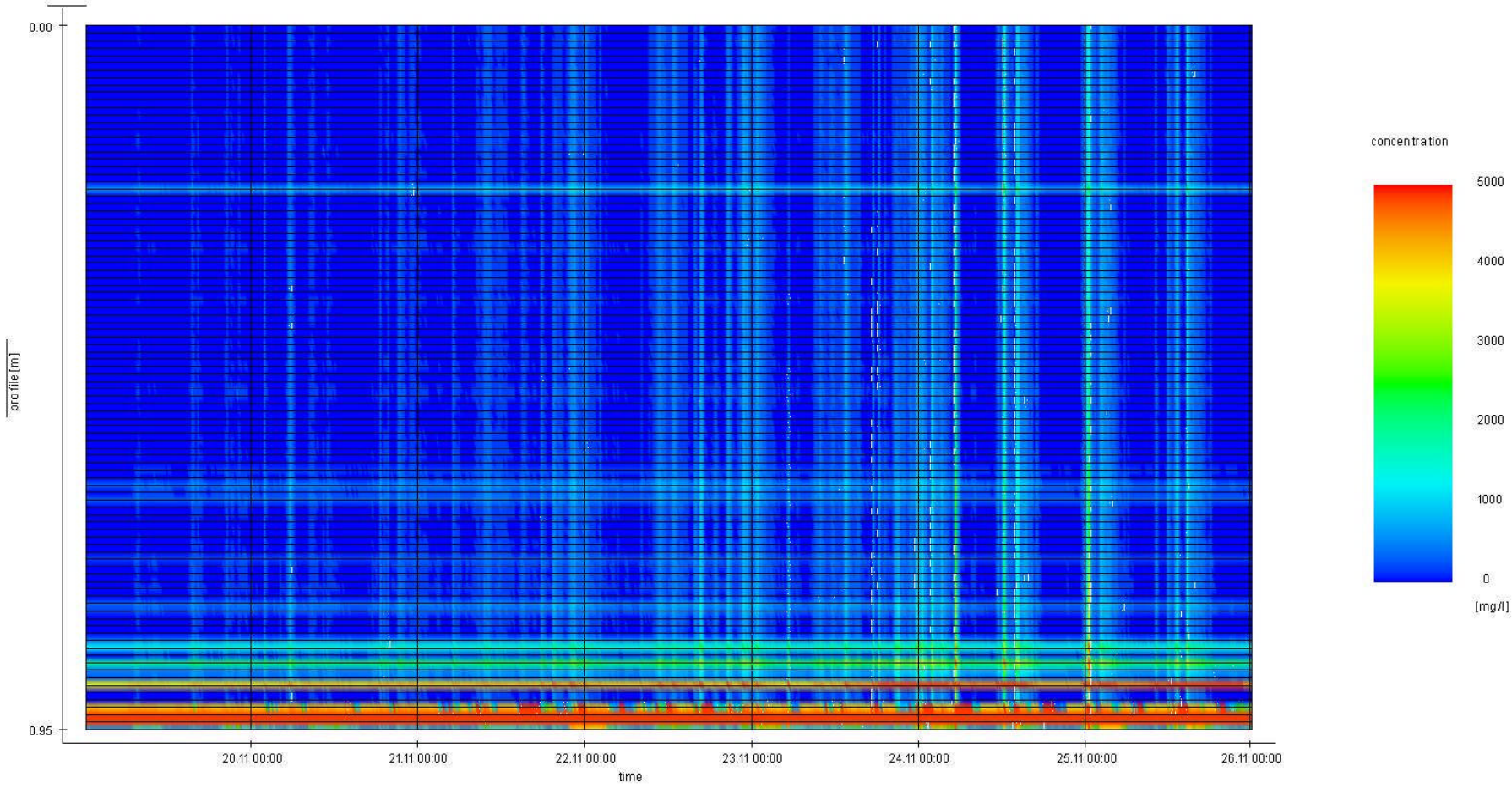
Date:
14/11/2007 – 18/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

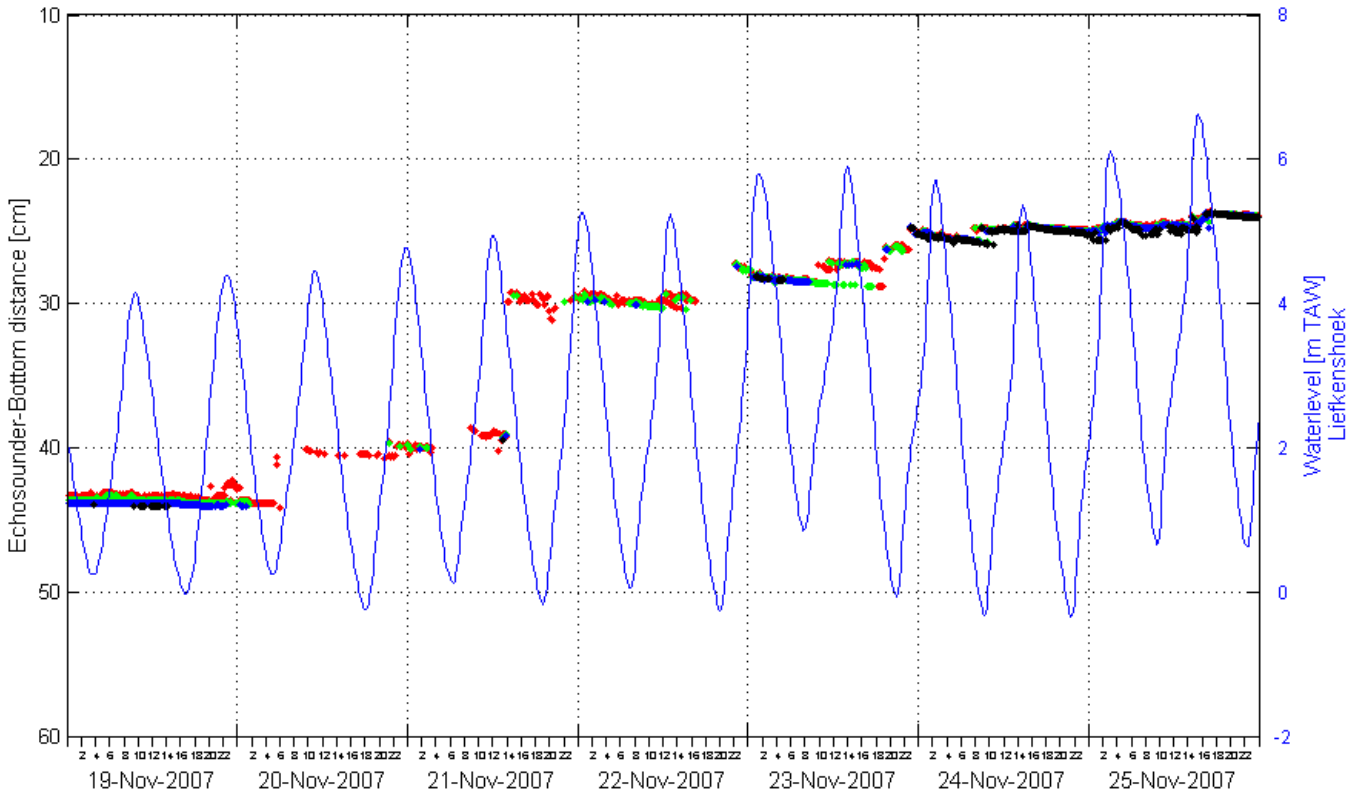
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 19/11/2007 – 25/11/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

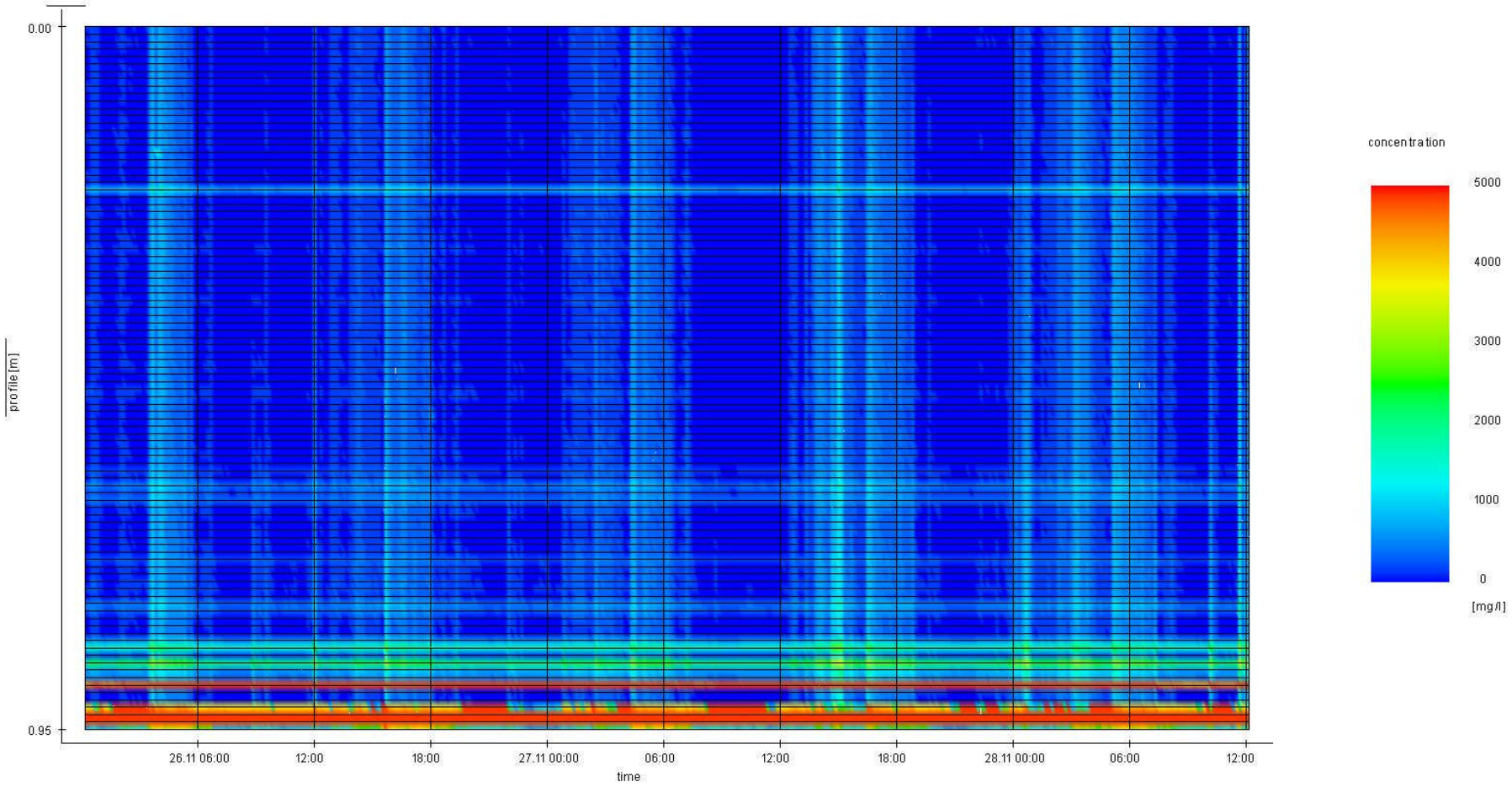
Date:
19/11/2007 – 25/11/2007

*Data processed by:* IMDC

*In association with:* wl | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

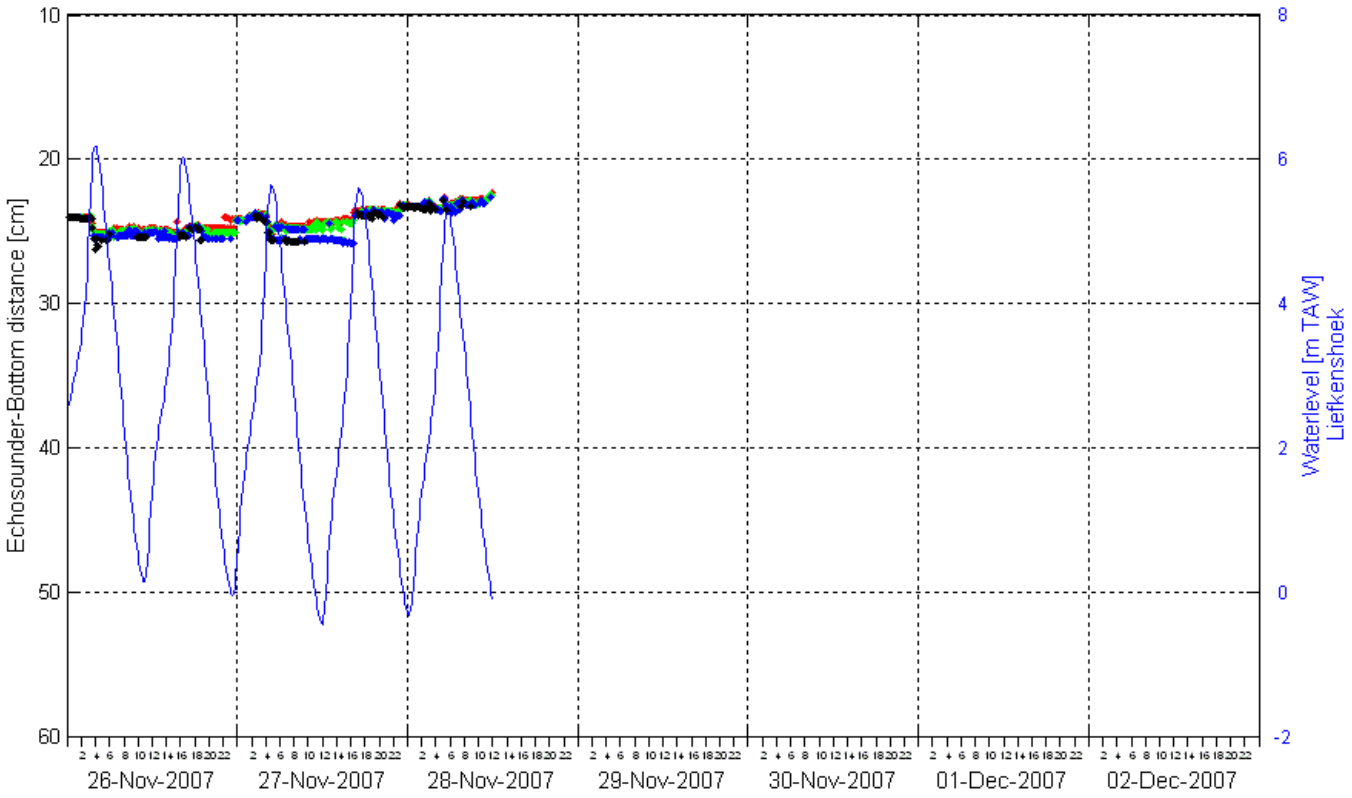
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 26/11/2007 – 28/11/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

Date:
26/11/2007 – 28/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

## ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom]

| *Date* | *Tide no.* | *Phase* | *Tidal diff [m]* | *128-123* | *122-113* | *112-103* | *102-93* | *92-83* | *82-73* | *72-63* | *62-53* | *52-43* | *42-33* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20071010 | 1 | flood | 9.1 | 174.9 | 137.8 | 136.7 | 67.6 | 84.5 | 311.6 | 225.6 | 70 | 66 | 1782.2 |
| 20071010 | 1 | ebb | 5.6 | 144.4 | 104.4 | 104.6 | 41.9 | 58.9 | 309.5 | 203 | 45.9 | 43.4 | 1799.7 |
| 20071011 | 2 | flood | 5.6 | 220.4 | 183.1 | 178.6 | 116.9 | 136.5 | 407.5 | 308.6 | 154.3 | 160 | 1909.8 |
| 20071011 | 2 | ebb | 5.5 | 161.2 | 120.5 | 117.8 | 55.1 | 75.9 | 349 | 224.3 | 58.7 | 58 | 1834 |
| 20071011 | 3 | flood | 5.4 | 215 | 172.4 | 172.8 | 104 | 122.5 | 400.4 | 271.6 | 104.7 | 101.9 | 1872 |
| 20071011 | 3 | ebb | 5.4 | 144.7 | 112.2 | 110.6 | 47.9 | 68.9 | 342.6 | 218.7 | 53.6 | 51.4 | 1837.4 |
| 20071012 | 4 | flood | 5.8 | 225.8 | 191.7 | 176.5 | 122.1 | 143.8 | 418.6 | 293.2 | 122 | 120.5 | 1895.6 |
| 20071012 | 4 | ebb | 5.4 | 153.5 | 119.3 | 109.2 | 52.8 | 73.1 | 368.4 | 229.5 | 56.4 | 55.6 | 1870.6 |
| 20071012 | 5 | flood | 5.3 | 210.4 | 159.5 | 137.4 | 89.8 | 111.2 | 398.4 | 277.9 | 92.3 | 90.2 | 1956.9 |
| 20071012 | 5 | ebb | 5.7 | 188.5 | 104.3 | 86.1 | 39.8 | 60.3 | 377.6 | 255.8 | 46.5 | 46.9 | 2015.8 |
| 20071013 | 6 | flood | 5.6 | 185.3 | 130 | 108.3 | 59 | 81.4 | 392.8 | 275.5 | 62.2 | 63.5 | 2002.1 |
| 20071013 | 6 | ebb | 5.5 | 154.7 | 116.5 | 96.2 | 49.8 | 71.3 | 342.7 | 242 | 56.3 | 56.4 | 1907 |
| 20071013 | 7 | flood | 5.5 | 181.2 | 136.4 | 120.7 | 65.3 | 87.6 | 356.1 | 259.1 | 67.8 | 67 | 1898.6 |
| 20071013 | 7 | ebb | 5.6 | 149 | 108.1 | 98.9 | 43.3 | 65 | 333.5 | 228.8 | 46.4 | 46.6 | 1878.1 |
| 20071014 | 8 | flood | 5.5 | 183.3 | 129.7 | 118.5 | 60.3 | 82.7 | 355.3 | 247.2 | 62.5 | 63.1 | 1890.7 |
| 20071014 | 8 | ebb | 5.3 | 207.2 | 118.8 | 106.3 | 52 | 74 | 347.7 | 233.7 | 55.4 | 56 | 1878 |
| 20071014 | 9 | flood | 5.4 | 216 | 123.7 | 116.9 | 55.9 | 82.3 | 355.5 | 236.6 | 56.8 | 58 | 1882.3 |
| 20071014 | 9 | ebb | 5.4 | 191.3 | 115.2 | 102.3 | 51.5 | 69.6 | 340.3 | 230.7 | 53.5 | 55.5 | 1881.8 |
| 20071015 | 10 | flood | 5.3 | 220.5 | 138.6 | 134.3 | 74.8 | 94.5 | 352.1 | 261.1 | 78.6 | 81.8 | 1900 |
| 20071015 | 10 | ebb | 5.2 | 212.2 | 117.5 | 109.7 | 55.1 | 75 | 330.2 | 240.4 | 58.7 | 62.5 | 1909 |
| 20071015 | 11 | flood | 5.2 | 298.6 | 174.6 | 174.2 | 112.3 | 128.8 | 387 | 296 | 112.3 | 115.6 | 1960.4 |
| 20071016 | 11 | ebb | 5.2 | 196.5 | 98.1 | 91.3 | 39.6 | 55.3 | 316.4 | 222.9 | 40.5 | 43.7 | 1913.3 |
| 20071016 | 12 | flood | 5.1 | 211 | 106.6 | 101.4 | 44 | 61.1 | 327.6 | 233.6 | 42.2 | 45 | 1936.6 |
| 20071016 | 12 | ebb | 4.8 | 203.5 | 96.6 | 91.4 | 37.1 | 55.4 | 321.2 | 228.5 | 39.4 | 42.4 | 1959.5 |
| 20071016 | 13 | flood | 4.9 | 235.6 | 117.8 | 108 | 51.2 | 72.2 | 344 | 249.5 | 54.6 | 56.8 | 1991.9 |

## ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom]

| *Date* | *Tide no.* | *Phase* | *Tidal diff [m]* | *128-123* | *122-113* | *112-103* | *102-93* | *92-83* | *82-73* | *72-63* | *62-53* | *52-43* | *42-33* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20071017 | 13 | ebb | 4.9 | 227.5 | 100.5 | 91.5 | 38.8 | 58.6 | 340.4 | 239.5 | 43.2 | 47.6 | 2028.9 |
| 20071017 | 14 | flood | 4.9 | 250.6 | 117.2 | 116.2 | 48.6 | 70.2 | 363.7 | 258.3 | 50.7 | 55.2 | 2075.7 |
| 20071017 | 14 | ebb | 4.7 | 235.2 | 98 | 95 | 36.1 | 56.3 | 362.9 | 248.4 | 40.5 | 44.6 | 2088.2 |
| 20071017 | 15 | flood | 4.8 | 273 | 117.7 | 114.5 | 55 | 74.9 | 401.4 | 274.8 | 56 | 59.9 | 2139.8 |
| 20071018 | 15 | ebb | 4.4 | 269.2 | 104.3 | 104.8 | 41.9 | 61 | 397.7 | 269.5 | 46.2 | 49.9 | 2152 |
| 20071018 | 16 | flood | 4.3 | 291.6 | 102.4 | 103.6 | 39.1 | 59.3 | 438.7 | 277.9 | 43 | 44.3 | 2183.9 |
| 20071018 | 16 | ebb | 4.5 | 310.7 | 115.8 | 118.3 | 55.2 | 75 | 472 | 298.7 | 58.9 | 62.9 | 2202.3 |
| 20071018 | 17 | flood | 4.4 | 335 | 127.3 | 128.7 | 65 | 86.1 | 498.8 | 316.5 | 68.3 | 73.6 | 2241 |
| 20071019 | 17 | ebb | 4.4 | 291.9 | 85.4 | 86.5 | 26 | 45.9 | 470.4 | 275.3 | 28.7 | 33 | 2220.5 |
| 20071019 | 18 | flood | 4 | 333 | 108.9 | 103.8 | 44.5 | 64.7 | 509.3 | 305.6 | 46.1 | 49.2 | 2398.5 |
| 20071019 | 18 | ebb | 4.1 | 317.5 | 87.2 | 95.9 | 28.9 | 46.3 | 513.1 | 292.2 | 30 | 35.4 | 2382.3 |
| 20071019 | 19 | flood | 4.1 | 331.3 | 105.3 | 104.8 | 45.2 | 63.8 | 544.5 | 310.9 | 43.4 | 46.9 | 2487.2 |
| 20071020 | 19 | ebb | 3.8 | 313.1 | 98.3 | 102.3 | 35.7 | 56.6 | 539 | 299.9 | 38.7 | 43.4 | 2572.2 |
| 20071020 | 20 | flood | 3.5 | 331.4 | 104.5 | 105.2 | 43.5 | 61.4 | 557.7 | 314.4 | 40.3 | 42.9 | 2607 |
| 20071020 | 20 | ebb | 3.6 | 317.6 | 85.4 | 91.1 | 29.8 | 49.7 | 559.3 | 307.2 | 28.5 | 31.7 | 2659.5 |
| 20071020 | 21 | flood | 3.8 | 348.6 | 107.1 | 103.8 | 47.9 | 65.4 | 589.5 | 330.5 | 44.2 | 44.1 | 2704.1 |
| 20071021 | 21 | ebb | 3.6 | 341.4 | 88.7 | 94.4 | 32.3 | 286 | 580.7 | 321.4 | 31.2 | 27.9 | 2656.4 |
| 20071021 | 22 | flood | 3.4 | 375.9 | 111.6 | 102.8 | 53.7 | 65.6 | 613.2 | 353 | 48.9 | 39 | 2587.3 |
| 20071021 | 22 | ebb | 3.6 | 357.9 | 89.6 | 85.8 | 36.7 | 45.6 | 605.9 | 347.7 | 35.6 | 26.8 | 2582.1 |
| 20071021 | 23 | flood | 4.1 | 392.6 | 106.6 | 97.3 | 57.1 | 60.6 | 633.6 | 360.8 | 52.9 | 38.2 | 2594.2 |
| 20071022 | 23 | ebb | 4.2 | 397.3 | 101.8 | 87 | 52.4 | 53.4 | 638.3 | 375.7 | 48.7 | 31.9 | 2589.1 |
| 20071022 | 24 | flood | 3.9 | 450.4 | 133 | 114.6 | 92.9 | 83.3 | 689.4 | 428.5 | 78.5 | 58.2 | 2621.2 |
| 20071022 | 24 | ebb | 4.3 | 432.8 | 118 | 101.5 | 77.8 | 64.2 | 661.8 | 402.3 | 62.5 | 43.7 | 2499 |
| 20071023 | 25 | flood | 4.8 | 502.6 | 194.5 | 179.3 | 167.6 | 152.2 | 775.9 | 498.9 | 161.7 | 138.4 | 2579.3 |
| 20071023 | 25 | ebb | 4.6 | 362.4 | 114.6 | 99.2 | 66.2 | 49.6 | 668.9 | 378.1 | 49.9 | 35.7 | 2434.5 |

## ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom]

| *Date* | *Tide no.* | *Phase* | *Tidal diff [m]* | *128-123* | *122-113* | *112-103* | *102-93* | *92-83* | *82-73* | *72-63* | *62-53* | *52-43* | *42-33* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20071023 | 26 | flood | 4.4 | 404.4 | 148.1 | 121.4 | 112.2 | 79.4 | 726.7 | 465 | 90.9 | 60.3 | 2472.3 |
| 20071023 | 26 | ebb | 4.9 | 328.9 | 115.1 | 95.8 | 91.9 | 49.7 | 687 | 405.8 | 56.6 | 36.8 | 2369.4 |
| 20071024 | 27 | flood | 5.3 | 396.4 | 159.8 | 132.1 | 150.9 | 93.9 | 737.1 | 466.6 | 105.5 | 75.2 | 2408.5 |
| 20071024 | 27 | ebb | 5.1 | 384.7 | 130.7 | 105.9 | 109.5 | 67.8 | 693.3 | 411.8 | 75.6 | 48.3 | 2438.7 |
| 20071024 | 28 | flood | 5 | 458.3 | 176.6 | 146.9 | 175.1 | 114.7 | 767.3 | 483 | 129.3 | 88.9 | 2479.6 |
| 20071024 | 28 | ebb | 5.4 | 394.1 | 151.7 | 127.2 | 140.1 | 94.2 | 752 | 439.4 | 101.4 | 74.3 | 2384.1 |
| 20071025 | 29 | flood | 5.8 | 549.8 | 287.9 | 258.8 | 294 | 240.5 | 894.1 | 602.3 | 255.8 | 224.1 | 2524.4 |
| 20071025 | 29 | ebb | 5.4 | 372.6 | 155.9 | 130.4 | 138 | 95.5 | 762 | 440.3 | 109.1 | 73.9 | 2390.2 |
| 20071026 | 30 | flood | 5.6 | 571 | 380.5 | 315.8 | 285.9 | 405.9 | 1048.8 | 970.9 | 472.7 | 401.7 | 2452.7 |
| 20071026 | 30 | ebb | 5.8 | 309.7 | 167.8 | 147 | 140.4 | 189.7 | 821.3 | 614.9 | 227.2 | 208.3 | 2237.2 |
| 20071026 | 31 | flood | 5.8 | 373.4 | 227.7 | 211.7 | 203.6 | 253.1 | 894.8 | 681.5 | 287.8 | 265.2 | 2315.7 |
| 20071026 | 31 | ebb | 6.1 | 306.1 | 150.8 | 143.9 | 131.5 | 179.1 | 819.3 | 601.6 | 210.3 | 189.6 | 2259.8 |
| 20071027 | 32 | flood | 6.4 | 381.1 | 224.4 | 212.7 | 202.8 | 249.9 | 893.4 | 673.5 | 274.9 | 253.2 | 2331.3 |
| 20071027 | 32 | ebb | 5.9 | 333.5 | 182.9 | 169.8 | 162.3 | 209.1 | 855.4 | 627 | 235.5 | 212.7 | 2298.9 |
| 20071027 | 33 | flood | 5.8 | 385.3 | 231.9 | 225.2 | 214.8 | 259.9 | 918 | 682.7 | 282.9 | 263.4 | 2360.8 |
| 20071027 | 33 | ebb | 6.3 | 317.2 | 164.6 | 155.3 | 145.8 | 192.9 | 846 | 599.1 | 216.1 | 195.2 | 2301.2 |
| 20071028 | 34 | flood | 6.2 | 393.4 | 241.4 | 227 | 225.2 | 269.4 | 936.9 | 686.6 | 305 | 285.3 | 2395 |
| 20071028 | 34 | ebb | 6 | 340.2 | 182.2 | 174.3 | 163 | 205.4 | 867.8 | 601.4 | 229.9 | 208.2 | 2324.1 |
| 20071028 | 35 | flood | 5.9 | 400.7 | 245.2 | 235.8 | 222.1 | 255.8 | 927 | 655.7 | 280.8 | 254.5 | 2393.3 |
| 20071028 | 35 | ebb | 5.9 | 341.7 | 184.5 | 172.6 | 153.5 | 192.4 | 867.3 | 595.3 | 224 | 201.8 | 2336.6 |
| 20071029 | 36 | flood | 6.1 | 383.3 | 225.6 | 209.3 | 191.7 | 231.9 | 909.6 | 631.9 | 258 | 236 | 2377 |
| 20071029 | 36 | ebb | 5.8 | 354.7 | 195 | 179.1 | 163.2 | 205.8 | 883.1 | 599 | 223.6 | 190.4 | 2342.5 |
| 20071029 | 37 | flood | 6 | 397 | 233.4 | 218 | 200 | 239.7 | 920.2 | 639 | 260 | 225.2 | 2384.6 |
| 20071030 | 37 | ebb | 5.8 | 329.9 | 164 | 152.6 | 134.7 | 178.5 | 857.8 | 563.4 | 195 | 159.2 | 2317.2 |
| 20071030 | 38 | flood | 5.6 | 373.6 | 206.9 | 194.4 | 177.3 | 217.3 | 901.4 | 605.6 | 236 | 200.1 | 2365.1 |

## ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom]

| *Date* | *Tide no.* | *Phase* | *Tidal diff [m]* | *128-123* | *122-113* | *112-103* | *102-93* | *92-83* | *82-73* | *72-63* | *62-53* | *52-43* | *42-33* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20071030 | 38 | ebb | 5.5 | 331.7 | 165.2 | 157.7 | 136.6 | 178.1 | 863.8 | 565.1 | 195.5 | 162.9 | 2329.1 |
| 20071030 | 39 | flood | 5.6 | 386.8 | 218.4 | 206.7 | 188.4 | 225.9 | 911.5 | 616.3 | 239.3 | 208.5 | 2380.9 |
| 20071031 | 39 | ebb | 5.7 | 325.3 | 158.6 | 142.9 | 129.7 | 170.9 | 862.5 | 559.7 | 187.6 | 157.3 | 2336.8 |
| 20071031 | 40 | flood | 5.1 | 364.4 | 193.3 | 176.1 | 162.5 | 199.7 | 890.8 | 590.5 | 214.8 | 182.4 | 2365.9 |
| 20071031 | 40 | ebb | 17.2 | 352.5 | 177.3 | 149.1 | 148.4 | 191.9 | 868.7 | 570.6 | 200.9 | 215.1 | 2482 |
| 20071031 | 41 | flood | 17.6 | 69.6 | 71.6 | 163.3 | 93.1 | 76.1 | 151.2 | 624.4 | 299.9 | 255.1 | 2005.7 |
| 20071101 | 41 | ebb | 4.9 | 34.9 | 34.4 | 98.4 | 42.1 | 36.9 | 90.6 | 450.6 | 167.4 | 161.4 | 1610.6 |
| 20071101 | 42 | flood | 4.6 | 133.2 | 98.8 | 179 | 121.6 | 114.8 | 183 | 576 | 254.1 | 235.7 | 1773.6 |
| 20071101 | 42 | ebb | 4.8 | 23 | 23.3 | 91 | 32.1 | 26.4 | 68.2 | 444.2 | 160.6 | 152.7 | 1656.4 |
| 20071101 | 43 | flood | 5 | 66 | 66.3 | 138.8 | 76.7 | 69.7 | 114.7 | 499.1 | 219.6 | 204.6 | 1869.7 |
| 20071102 | 43 | ebb | 4.6 | 26.5 | 26.7 | 94.6 | 35.7 | 30.4 | 72.8 | 448.1 | 163.4 | 156.4 | 1782.8 |
| 20071102 | 44 | flood | 4 | 33.6 | 33.2 | 102.7 | 39.5 | 34 | 75.5 | 449.5 | 165.9 | 159.5 | 1823.6 |
| 20071102 | 44 | ebb | 4.5 | 21.7 | 20.1 | 90.1 | 27.5 | 24.1 | 63.8 | 439.5 | 154 | 148.8 | 1769.3 |
| 20071102 | 45 | flood | 4.6 | 53.9 | 54.6 | 126.3 | 62.6 | 55.8 | 100.3 | 480 | 199 | 186.7 | 1858.7 |
| 20071103 | 45 | ebb | 4.1 | 18 | 16.8 | 88.3 | 23.2 | 18.9 | 60 | 437.5 | 150.3 | 145.6 | 1692.7 |
| 20071103 | 46 | flood | 3.8 | 20.3 | 19.8 | 90.8 | 24.1 | 20.6 | 60.1 | 435.2 | 145.8 | 144.7 | 1837 |
| 20071103 | 46 | ebb | 4 | 12 | 10.8 | 82.7 | 15.2 | 12.1 | 51.8 | 425.3 | 137.4 | 143 | 1853.3 |
| 20071103 | 47 | flood | 4.4 | 20.9 | 21.2 | 95.5 | 26.1 | 21.2 | 63.2 | 432.6 | 152.2 | 158.7 | 1904.3 |
| 20071104 | 47 | ebb | 4.3 | 16.7 | 16 | 91.2 | 21.6 | 17.6 | 58.8 | 428.6 | 146.5 | 159 | 1841.7 |
| 20071104 | 48 | flood | 3.7 | 12.2 | 11 | 86.2 | 14.7 | 11.3 | 50.8 | 417.6 | 134 | 148.2 | 1818.3 |
| 20071114 | 48 | ebb | 16.7 | 85.9 | 125.1 | 245.8 | 139.5 | 107.8 | 174.3 | 626 | 406.1 | 482.6 | 2075.7 |
| 20071114 | 49 | flood | 5 | 65.7 | 67.9 | 137.7 | 84.3 | 65.6 | 78.9 | 195.4 | 120.6 | 362.4 | 2193.9 |
| 20071115 | 49 | ebb | 4.9 | 34.7 | 39.7 | 108.6 | 52.6 | 42.4 | 54.7 | 167.7 | 96.7 | 342.1 | 2167.7 |
| 20071115 | 50 | flood | 4.9 | 177 | 191.3 | 268.8 | 220.9 | 207.7 | 226.1 | 350.6 | 278.7 | 527.5 | 2342.9 |
| 20071115 | 50 | ebb | 5.1 | 33.1 | 37.3 | 105.6 | 46.5 | 35.1 | 46 | 158.6 | 86.7 | 333 | 2168 |

## ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom]

| *Date* | *Tide no.* | *Phase* | *Tidal diff [m]* | *128-123* | *122-113* | *112-103* | *102-93* | *92-83* | *82-73* | *72-63* | *62-53* | *52-43* | *42-33* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20071115 | 51 | flood | 5.1 | 86.3 | 91.2 | 162.9 | 106.1 | 89 | 102 | 221.1 | 144.5 | 390.1 | 2260.9 |
| 20071116 | 51 | ebb | 4.6 | 36.3 | 39.2 | 109.4 | 50.9 | 38.5 | 51.4 | 164.5 | 91.1 | 336.4 | 2172.2 |
| 20071116 | 52 | flood | 4.6 | 64.8 | 70.4 | 141.2 | 82.9 | 65.1 | 79.3 | 194.4 | 120.1 | 365.1 | 2211.5 |
| 20071116 | 52 | ebb | 4.7 | 30.5 | 34.4 | 104.3 | 44.2 | 32.6 | 44.4 | 156.2 | 82.6 | 328.1 | 2167.5 |
| 20071116 | 53 | flood | 4.8 | 69.9 | 74.7 | 146.7 | 86.7 | 69.7 | 82.7 | 199.8 | 123.6 | 370.3 | 2168.8 |
| 20071117 | 53 | ebb | 4.4 | 36.1 | 39.9 | 113.6 | 52.6 | 38.2 | 52.1 | 165 | 91.3 | 337.4 | 2140 |
| 20071117 | 54 | flood | 4.2 | 56.2 | 58.9 | 132.3 | 76.9 | 55.9 | 70 | 183.4 | 108.6 | 354.2 | 2184.3 |
| 20071117 | 54 | ebb | 4.4 | 23.4 | 26.4 | 98.1 | 35.7 | 25.2 | 36.2 | 145.4 | 73.7 | 319.1 | 2181.9 |
| 20071117 | 55 | flood | 4.5 | 69.4 | 72.8 | 147.7 | 85.4 | 68.1 | 82.1 | 199.6 | 122.3 | 368.7 | 2253.2 |
| 20071118 | 55 | ebb | 4.2 | 31.5 | 33.9 | 107.1 | 43.7 | 32.4 | 44.8 | 156 | 83.1 | 330.5 | 2193.8 |
| 20071118 | 56 | flood | 3.7 | 28.4 | 31.3 | 104.6 | 39.9 | 29.3 | 39.5 | 150.1 | 76.4 | 320.8 | 2173.6 |
| 20071118 | 56 | ebb | 4.3 | 31 | 31.5 | 106.1 | 42.3 | 31.6 | 43.6 | 154.4 | 81.8 | 329.2 | 2190.8 |
| 20071118 | 57 | flood | 3.9 | 65.9 | 70.3 | 151.1 | 89.6 | 73.3 | 89.4 | 211 | 134 | 384.1 | 2253.6 |
| 20071119 | 57 | ebb | 3.8 | 25.4 | 25.3 | 100.7 | 35.8 | 24.9 | 37.3 | 145.9 | 72.8 | 320.6 | 2200.2 |
| 20071119 | 58 | flood | 3.9 | 30.8 | 31.7 | 108.7 | 41.4 | 30.3 | 40.9 | 151 | 78.5 | 325.2 | 2210.3 |
| 20071119 | 58 | ebb | 4.1 | 53.6 | 57.8 | 136.6 | 72.4 | 60.4 | 75.4 | 192.4 | 120.9 | 373.3 | 2231.8 |
| 20071119 | 59 | flood | 4.4 | 72.9 | 76.2 | 157.7 | 92.1 | 77.8 | 95.6 | 211.9 | 135.4 | 390.7 | 2294.1 |
| 20071120 | 59 | ebb | 4.1 | 48.1 | 52.7 | 136.3 | 78 | 71.3 | 93.6 | 221.5 | 151.1 | 412.4 | 2246.8 |
| 20071120 | 60 | flood | 4.2 | 120.5 | 126.4 | 213.3 | 152 | 136.5 | 153.6 | 277.9 | 208.5 | 476.2 | 2339.8 |
| 20071120 | 60 | ebb | 4.7 | 35 | 36.1 | 114.9 | 50.5 | 38.6 | 51.7 | 170.1 | 95.2 | 353 | 2245.1 |
| 20071120 | 61 | flood | 5 | 155.1 | 159.5 | 243.9 | 184.7 | 167.5 | 185.2 | 310.1 | 239.5 | 502.5 | 2316.9 |
| 20071121 | 61 | ebb | 4.6 | 78.9 | 82 | 168 | 108 | 94.2 | 114 | 239.1 | 165.6 | 427.8 | 2195.7 |
| 20071121 | 62 | flood | 4.8 | 183 | 188.6 | 274 | 211 | 190.6 | 205.9 | 327.9 | 250.8 | 509.8 | 2324.8 |
| 20071121 | 62 | ebb | 5.1 | 104.1 | 108.3 | 194 | 130.6 | 119.4 | 133.9 | 260.3 | 187.2 | 452.3 | 2313.1 |
| 20071122 | 63 | flood | 5.3 | 298.6 | 311.1 | 399.5 | 347 | 331.6 | 346.9 | 472.2 | 405.3 | 660.9 | 2505.6 |

## ARGUS Mean SS Concentration [mg/l] per tidal phase in layers of 10 cm (*except first column 6 cm) [distances given in cm above bottom]

| *Date* | *Tide no.* | *Phase* | *Tidal diff [m]* | *128-123* | *122-113* | *112-103* | *102-93* | *92-83* | *82-73* | *72-63* | *62-53* | *52-43* | *42-33* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20071122 | 63 | ebb | 5.2 | 78.2 | 81.7 | 165.1 | 100.4 | 90.2 | 102.6 | 226 | 152.6 | 418.1 | 2286.4 |
| 20071122 | 64 | flood | 5.1 | 260.4 | 267.7 | 347.8 | 286.4 | 269.5 | 278.7 | 396.9 | 323.1 | 577.9 | 2398.8 |
| 20071122 | 64 | ebb | 5.4 | 159.3 | 174.3 | 267.6 | 216.2 | 214.4 | 240.4 | 374.1 | 311.7 | 578.7 | 2414.6 |
| 20071123 | 65 | flood | 6.1 | 401.7 | 417.6 | 504.2 | 447.9 | 428.2 | 444.1 | 563.8 | 499.4 | 761.9 | 2557.4 |
| 20071123 | 65 | ebb | 4.9 | 105.4 | 110.7 | 200.3 | 139.6 | 130.4 | 149.9 | 280.4 | 213.3 | 483.5 | 2381 |
| 20071123 | 66 | flood | 5.1 | 287.8 | 296.2 | 380.5 | 322 | 302.8 | 316.8 | 439.3 | 373.8 | 634.9 | 2451.8 |
| 20071123 | 66 | ebb | 5.9 | 187.6 | 199.3 | 296.4 | 249.3 | 250 | 277.6 | 415.3 | 356.1 | 640.3 | 2516.9 |
| 20071124 | 67 | flood | 5.7 | 488.5 | 503.7 | 593.3 | 542 | 530.9 | 554.4 | 693.3 | 642.6 | 935.2 | 2757.2 |
| 20071124 | 67 | ebb | 6 | 220.5 | 228.7 | 313.8 | 267.2 | 261.4 | 286.2 | 420.9 | 362.6 | 639.7 | 2583.3 |
| 20071124 | 68 | flood | 5.6 | 390.2 | 394.7 | 469.2 | 417.8 | 405 | 420.5 | 552 | 495.6 | 772.9 | 2624.2 |
| 20071124 | 68 | ebb | 5.7 | 136.6 | 138.8 | 214.3 | 154.2 | 145.1 | 158.7 | 278.7 | 215.2 | 483.1 | 2303.7 |
| 20071125 | 69 | flood | 6.4 | 401.3 | 410.2 | 490 | 431.1 | 417.5 | 436.4 | 566.9 | 508.3 | 790.4 | 2704 |
| 20071125 | 69 | ebb | 5.4 | 127.5 | 127.6 | 205.3 | 144.7 | 132.1 | 143.7 | 262.7 | 193.5 | 458.9 | 2413.4 |
| 20071125 | 70 | flood | 5.9 | 349.3 | 358.1 | 436.8 | 377.3 | 360.4 | 368 | 487.2 | 416.4 | 678.2 | 2643.6 |
| 20071125 | 70 | ebb | 5.9 | 117.6 | 120.4 | 198.7 | 137 | 125.2 | 137.3 | 255.7 | 188.2 | 451.7 | 2412.7 |
| 20071126 | 71 | flood | 5.5 | 171.9 | 171.1 | 252.7 | 185.8 | 169.5 | 179.8 | 296.3 | 223.1 | 489 | 2446.4 |
| 20071126 | 71 | ebb | 6 | 122.4 | 127.1 | 207.4 | 150.2 | 141.3 | 157.7 | 282.8 | 221.3 | 494.3 | 2472.6 |
| 20071126 | 72 | flood | 5.8 | 222.1 | 226 | 304 | 249.6 | 236.1 | 252.3 | 378.8 | 313 | 586 | 2530.9 |
| 20071126 | 72 | ebb | 6 | 127.2 | 130.3 | 212.6 | 153.1 | 144.3 | 160.7 | 284.3 | 216.7 | 486 | 2482.4 |
| 20071127 | 73 | flood | 5.6 | 234.7 | 237.6 | 320.5 | 258.7 | 241.3 | 254.6 | 376.7 | 309.3 | 578.5 | 2486.6 |
| 20071127 | 73 | ebb | 6 | 104.8 | 105.7 | 182.8 | 122.2 | 114.2 | 126.5 | 246.6 | 179.3 | 447.3 | 2496.9 |
| 20071127 | 74 | flood | 5.9 | 383.3 | 392.3 | 476.7 | 417.2 | 405 | 422.9 | 556 | 505.3 | 784.5 | 2634.8 |
| 20071127 | 74 | ebb | 5.9 | 127 | 127.8 | 207.9 | 148.2 | 140.5 | 155.6 | 279.6 | 214.8 | 492 | 2481.8 |
| 20071128 | 75 | flood | 5.5 | 343.7 | 350.3 | 438 | 382.1 | 372.8 | 389.4 | 516.8 | 459.1 | 742.2 | 2705.8 |

| ALTUS Echosounder bottom distance [cm] | | | | | | |
|---|---|---|---|---|---|---|
| **Date** | **Tide no.** | **Phase** | **Signal 1** | **Signal 2** | **Signal 3** | **Signal 4** |
| 20071010 | 1 | flood | 47.59 | 48.28 | - | - |
| 20071010 | 1 | ebb | 46.89 | 46.97 | - | - |
| 20071011 | 2 | flood | 46.15 | 46.23 | 46.23 | 46.35 |
| 20071011 | 2 | ebb | 46.35 | 46.44 | 46.48 | - |
| 20071011 | 3 | flood | 45.9 | 45.94 | 46.07 | - |
| 20071011 | 3 | ebb | 45.78 | 45.82 | 45.9 | - |
| 20071012 | 4 | flood | 46.19 | 46.27 | 46.35 | - |
| 20071012 | 4 | ebb | 45.86 | 46.11 | - | - |
| 20071012 | 5 | flood | 45.37 | 45.49 | 45.74 | - |
| 20071012 | 5 | ebb | 45.12 | - | - | - |
| 20071013 | 6 | flood | 47.3 | 47.3 | 47.38 | 47.46 |
| 20071013 | 6 | ebb | 47.18 | 47.22 | 47.26 | 47.34 |
| 20071013 | 7 | flood | 47.13 | 47.38 | 47.55 | 47.55 |
| 20071013 | 7 | ebb | 47.05 | 47.13 | 47.22 | 47.34 |
| 20071014 | 8 | flood | 47.13 | 47.13 | 47.26 | 47.42 |
| 20071014 | 8 | ebb | 46.77 | 46.93 | 47.09 | 47.22 |
| 20071014 | 9 | flood | 47.13 | 47.13 | 47.13 | 47.22 |
| 20071014 | 9 | ebb | 46.85 | 46.85 | 46.85 | 46.93 |
| 20071015 | 10 | flood | 46.64 | 46.72 | 46.72 | 47.59 |
| 20071015 | 10 | ebb | 45.82 | 47.34 | 47.38 | - |
| 20071015 | 11 | flood | 46.03 | 46.07 | - | - |
| 20071016 | 11 | ebb | 46.19 | 46.56 | - | - |
| 20071016 | 12 | flood | 45.12 | 45.12 | 45.25 | - |
| 20071016 | 12 | ebb | 45.33 | 45.49 | - | - |
| 20071016 | 13 | flood | 45.53 | 45.66 | - | - |
| 20071017 | 13 | ebb | 44.67 | 44.75 | 44.75 | 44.8 |
| 20071017 | 14 | flood | 45.08 | 45.12 | 45.29 | - |
| 20071017 | 14 | ebb | 44.8 | 44.8 | 44.88 | - |
| 20071017 | 15 | flood | 44.47 | 45.12 | 45.2 | - |
| 20071018 | 15 | ebb | 45.08 | 45.12 | 45.2 | - |
| 20071018 | 16 | flood | 44.26 | 45.33 | - | - |
| 20071018 | 16 | ebb | 43.56 | - | - | - |
| 20071018 | 17 | flood | 43.73 | 43.81 | 43.85 | - |
| 20071019 | 17 | ebb | 43.56 | 43.65 | - | - |
| 20071019 | 18 | flood | 43.65 | 43.77 | 43.93 | - |
| 20071019 | 18 | ebb | 43.6 | 43.73 | - | - |
| 20071019 | 19 | flood | 43.44 | 43.65 | - | - |
| 20071020 | 19 | ebb | 43.56 | 43.85 | - | - |
| 20071020 | 20 | flood | 43.48 | 43.56 | 44.06 | - |
| 20071020 | 20 | ebb | 43.56 | 43.97 | - | - |
| 20071020 | 21 | flood | 43.4 | 44.14 | - | - |
| 20071021 | 21 | ebb | 43.15 | - | - | - |

## ALTUS Echosounder bottom distance [cm]

| Date | Tide no. | Phase | Signal 1 | Signal 2 | Signal 3 | Signal 4 |
|---|---|---|---|---|---|---|
| 20071021 | 22 | flood | 43.28 | - | - | - |
| 20071021 | 22 | ebb | 43.36 | - | - | - |
| 20071021 | 23 | flood | 42.95 | 43.03 | - | - |
| 20071022 | 23 | ebb | 42.74 | 42.82 | - | - |
| 20071022 | 24 | flood | 42.82 | 42.82 | - | - |
| 20071022 | 24 | ebb | 42.41 | 42.41 | 42.45 | 42.5 |
| 20071023 | 25 | flood | 42.21 | 42.25 | 42.25 | 42.37 |
| 20071023 | 25 | ebb | 42.21 | 42.21 | 42.25 | 42.33 |
| 20071023 | 26 | flood | 42.45 | 42.62 | 42.78 | - |
| 20071023 | 26 | ebb | 42.33 | 42.41 | 42.54 | - |
| 20071024 | 27 | flood | 42.17 | 42.29 | 42.33 | - |
| 20071024 | 27 | ebb | 41.92 | 42.41 | - | - |
| 20071024 | 28 | flood | 41.96 | 42.54 | - | - |
| 20071024 | 28 | ebb | 41.59 | 41.59 | - | - |
| 20071025 | 29 | flood | 41.06 | 41.1 | 41.18 | - |
| 20071025 | 29 | ebb | 40.85 | 40.94 | 41.02 | - |
| 20071026 | 30 | flood | - | - | - | - |
| 20071026 | 30 | ebb | - | - | - | - |
| 20071026 | 31 | flood | - | - | - | - |
| 20071026 | 31 | ebb | - | - | - | - |
| 20071027 | 32 | flood | - | - | - | - |
| 20071027 | 32 | ebb | - | - | - | - |
| 20071027 | 33 | flood | - | - | - | - |
| 20071027 | 33 | ebb | - | - | - | - |
| 20071028 | 34 | flood | - | - | - | - |
| 20071028 | 34 | ebb | - | - | - | - |
| 20071028 | 35 | flood | - | - | - | - |
| 20071028 | 35 | ebb | - | - | - | - |
| 20071029 | 36 | flood | - | - | - | - |
| 20071029 | 36 | ebb | - | - | - | - |
| 20071029 | 37 | flood | - | - | - | - |
| 20071030 | 37 | ebb | - | - | - | - |
| 20071030 | 38 | flood | - | - | - | - |
| 20071030 | 38 | ebb | - | - | - | - |
| 20071030 | 39 | flood | - | - | - | - |
| 20071031 | 39 | ebb | - | - | - | - |
| 20071031 | 40 | flood | - | - | - | - |
| 20071031 | 40 | ebb | 49.68 | 50.46 | - | - |
| 20071031 | 41 | flood | 49.48 | 49.48 | - | - |
| 20071101 | 41 | ebb | 49.15 | - | - | - |
| 20071101 | 42 | flood | 48.78 | 49.93 | - | - |
| 20071101 | 42 | ebb | 48.7 | - | - | - |

## ALTUS Echosounder bottom distance [cm]

| Date | Tide no. | Phase | Signal 1 | Signal 2 | Signal 3 | Signal 4 |
|---|---|---|---|---|---|---|
| 20071101 | 43 | flood | 48.78 | - | - | - |
| 20071102 | 43 | ebb | 48.98 | 49.06 | - | - |
| 20071102 | 44 | flood | 48.98 | 49.27 | - | - |
| 20071102 | 44 | ebb | 48.78 | 48.94 | 49.1 | - |
| 20071102 | 45 | flood | 48.82 | - | - | - |
| 20071103 | 45 | ebb | 48.74 | 49.02 | - | - |
| 20071103 | 46 | flood | 48.78 | - | - | - |
| 20071103 | 46 | ebb | 48.49 | - | - | - |
| 20071103 | 47 | flood | 48.2 | - | - | - |
| 20071104 | 47 | ebb | 48.08 | - | - | - |
| 20071104 | 48 | flood | - | - | - | - |
| 20071104 | 48 | ebb | - | - | - | - |
| 20071104 | 49 | flood | - | - | - | - |
| 20071105 | 49 | ebb | - | - | - | - |
| 20071105 | 50 | flood | - | - | - | - |
| 20071105 | 50 | ebb | - | - | - | - |
| 20071106 | 51 | flood | 44.67 | 44.88 | - | - |
| 20071106 | 51 | ebb | 44.75 | - | - | - |
| 20071106 | 52 | flood | - | - | - | - |
| 20071106 | 52 | ebb | - | - | - | - |
| 20071107 | 53 | flood | - | - | - | - |
| 20071107 | 53 | ebb | - | - | - | - |
| 20071107 | 54 | flood | - | - | - | - |
| 20071107 | 54 | ebb | - | - | - | - |
| 20071108 | 55 | flood | 45.16 | - | - | - |
| 20071108 | 55 | ebb | - | - | - | - |
| 20071108 | 56 | flood | 43.65 | - | - | - |
| 20071108 | 56 | ebb | - | - | - | - |
| 20071109 | 57 | flood | 44.06 | - | - | - |
| 20071109 | 57 | ebb | - | - | - | - |
| 20071109 | 58 | flood | - | - | - | - |
| 20071109 | 58 | ebb | - | - | - | - |
| 20071110 | 59 | flood | - | - | - | - |
| 20071110 | 59 | ebb | - | - | - | - |
| 20071110 | 60 | flood | - | - | - | - |
| 20071110 | 60 | ebb | - | - | - | - |
| 20071111 | 61 | flood | - | - | - | - |
| 20071111 | 61 | ebb | - | - | - | - |
| 20071111 | 62 | flood | - | - | - | - |
| 20071111 | 62 | ebb | - | - | - | - |
| 20071112 | 63 | flood | - | - | - | - |
| 20071112 | 63 | ebb | - | - | - | - |

## ALTUS Echosounder bottom distance [cm]

| Date | Tide no. | Phase | Signal 1 | Signal 2 | Signal 3 | Signal 4 |
|---|---|---|---|---|---|---|
| 20071112 | 64 | flood | - | - | - | - |
| 20071112 | 64 | ebb | - | - | - | - |
| 20071113 | 65 | flood | 40.57 | - | - | - |
| 20071113 | 65 | ebb | 41.02 | - | - | - |
| 20071113 | 66 | flood | 40.57 | - | - | - |
| 20071113 | 66 | ebb | - | - | - | - |
| 20071114 | 67 | flood | 40.61 | - | - | - |
| 20071114 | 67 | ebb | 43.6 | 43.65 | - | - |
| 20071114 | 68 | flood | 43.15 | 43.36 | - | - |
| 20071115 | 68 | ebb | 42.66 | 42.87 | - | - |
| 20071115 | 69 | flood | 41.63 | 41.76 | - | - |
| 20071115 | 69 | ebb | 41.63 | 41.72 | 41.76 | - |
| 20071115 | 70 | flood | 44.75 | 44.92 | - | - |
| 20071116 | 70 | ebb | 44.42 | 44.59 | - | - |
| 20071116 | 71 | flood | 44.34 | 44.42 | - | - |
| 20071116 | 71 | ebb | 43.73 | 44.18 | 44.34 | - |
| 20071116 | 72 | flood | 43.4 | 43.48 | 44.06 | - |
| 20071117 | 72 | ebb | 43.32 | 43.44 | 43.93 | 44.14 |
| 20071117 | 73 | flood | 43.4 | 43.77 | 43.97 | 44.14 |
| 20071117 | 73 | ebb | 43.32 | 43.4 | 43.89 | 44.06 |
| 20071117 | 74 | flood | 43.28 | 43.89 | 43.93 | 44.06 |
| 20071118 | 74 | ebb | 43.19 | 43.23 | 43.85 | 43.93 |
| 20071118 | 75 | flood | 43.4 | 43.89 | 43.89 | 44.06 |
| 20071118 | 75 | ebb | 43.6 | 43.6 | 43.85 | 44.02 |
| 20071118 | 76 | flood | 43.6 | 43.65 | 43.89 | 44.02 |
| 20071119 | 76 | ebb | 43.56 | 43.6 | 43.85 | - |
| 20071119 | 77 | flood | 43.23 | 43.6 | 43.85 | 44.02 |
| 20071119 | 77 | ebb | 43.36 | 43.77 | 43.93 | - |
| 20071119 | 78 | flood | 43.36 | 43.85 | - | - |
| 20071120 | 78 | ebb | 43.89 | - | - | - |
| 20071120 | 79 | flood | - | - | - | - |
| 20071120 | 79 | ebb | 40.48 | - | - | - |
| 20071120 | 80 | flood | 39.79 | - | - | - |
| 20071121 | 80 | ebb | - | - | - | - |
| 20071121 | 81 | flood | - | - | - | - |
| 20071121 | 81 | ebb | 29.44 | - | - | - |
| 20071122 | 82 | flood | 29.65 | - | - | - |
| 20071122 | 82 | ebb | 29.93 | - | - | - |
| 20071122 | 83 | flood | 29.36 | - | - | - |
| 20071122 | 83 | ebb | - | - | - | - |
| 20071123 | 84 | flood | 27.96 | 28.05 | 28.05 | 28.17 |
| 20071123 | 84 | ebb | 28.29 | 28.41 | 28.5 | - |

| ALTUS Echosounder bottom distance [cm] | | | | | | |
|---|---|---|---|---|---|---|
| **Date** | **Tide no.** | **Phase** | **Signal 1** | **Signal 2** | **Signal 3** | **Signal 4** |
| 20071123 | 85 | flood | 27.18 | 27.27 | 27.35 | - |
| 20071123 | 85 | ebb | 25.91 | 26.03 | - | - |
| 20071124 | 86 | flood | 25.34 | 25.34 | 25.38 | 25.38 |
| 20071124 | 86 | ebb | 24.72 | 24.72 | 24.76 | 24.8 |
| 20071124 | 87 | flood | 24.89 | 24.97 | 24.97 | 25.01 |
| 20071124 | 87 | ebb | 24.84 | 24.93 | 24.97 | 25.09 |
| 20071125 | 88 | flood | 24.68 | 24.68 | 24.68 | 24.72 |
| 20071125 | 88 | ebb | 24.52 | 24.6 | 24.76 | 24.89 |
| 20071125 | 89 | flood | 24.19 | 24.27 | 24.6 | 25.05 |
| 20071125 | 89 | ebb | 23.86 | 23.9 | 23.94 | 23.98 |
| 20071126 | 90 | flood | 24.84 | 24.93 | 25.34 | 25.5 |
| 20071126 | 90 | ebb | 24.89 | 25.05 | 25.25 | 25.42 |
| 20071126 | 91 | flood | 25.01 | 25.05 | 25.13 | 25.25 |
| 20071126 | 91 | ebb | 24.76 | 25.13 | 25.46 | - |
| 20071127 | 92 | flood | 25.17 | 25.42 | 25.42 | 25.5 |
| 20071127 | 92 | ebb | 24.31 | 24.56 | 25.58 | - |
| 20071127 | 93 | flood | 23.61 | 23.78 | 23.78 | 23.86 |
| 20071127 | 93 | ebb | 23.2 | 23.24 | 23.24 | 23.32 |
| 20071128 | 94 | flood | 23.08 | 23.16 | 23.24 | 23.61 |

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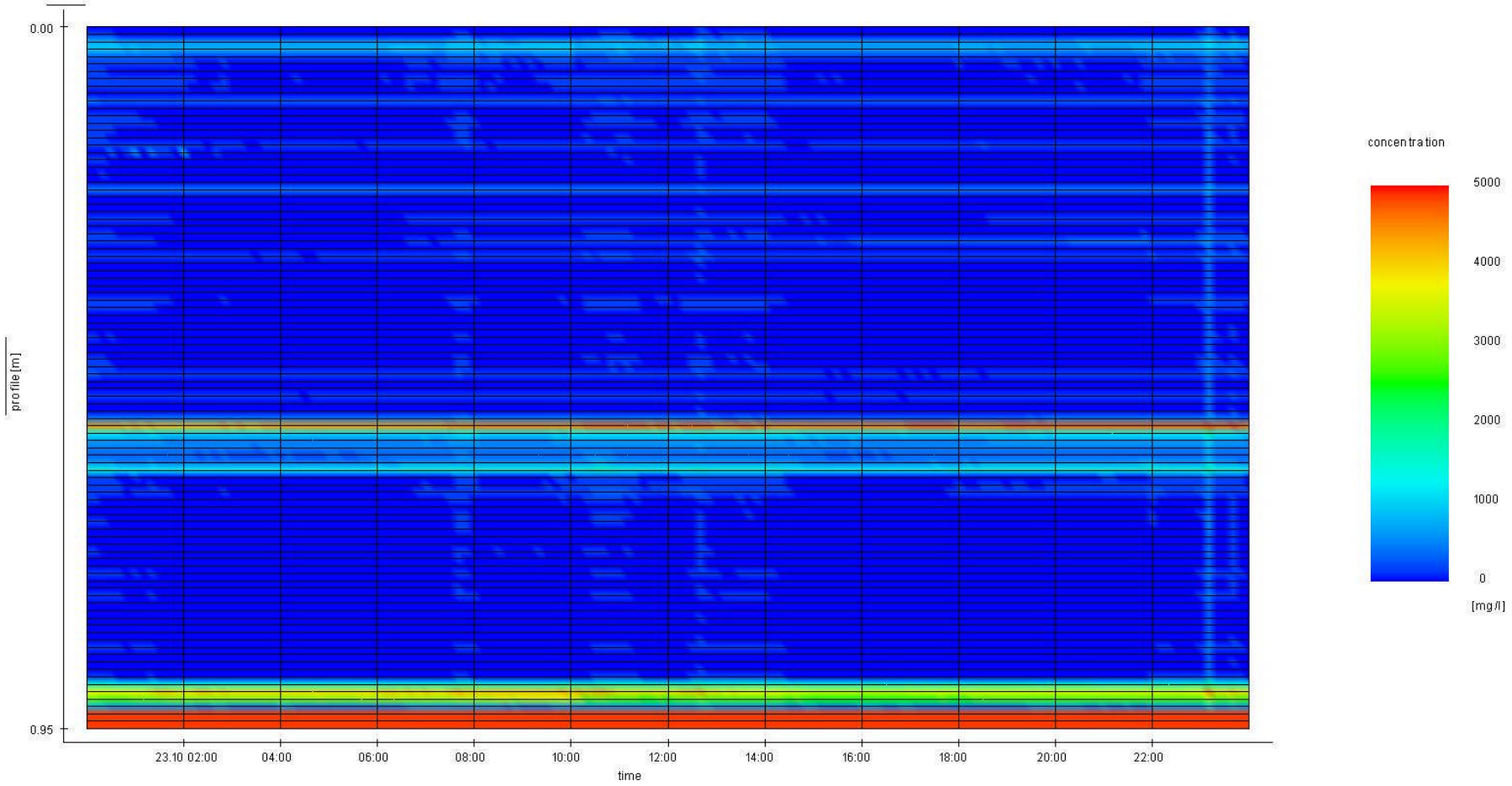
# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




Time series suspended sediment concentration
ARGUS ASM-IV

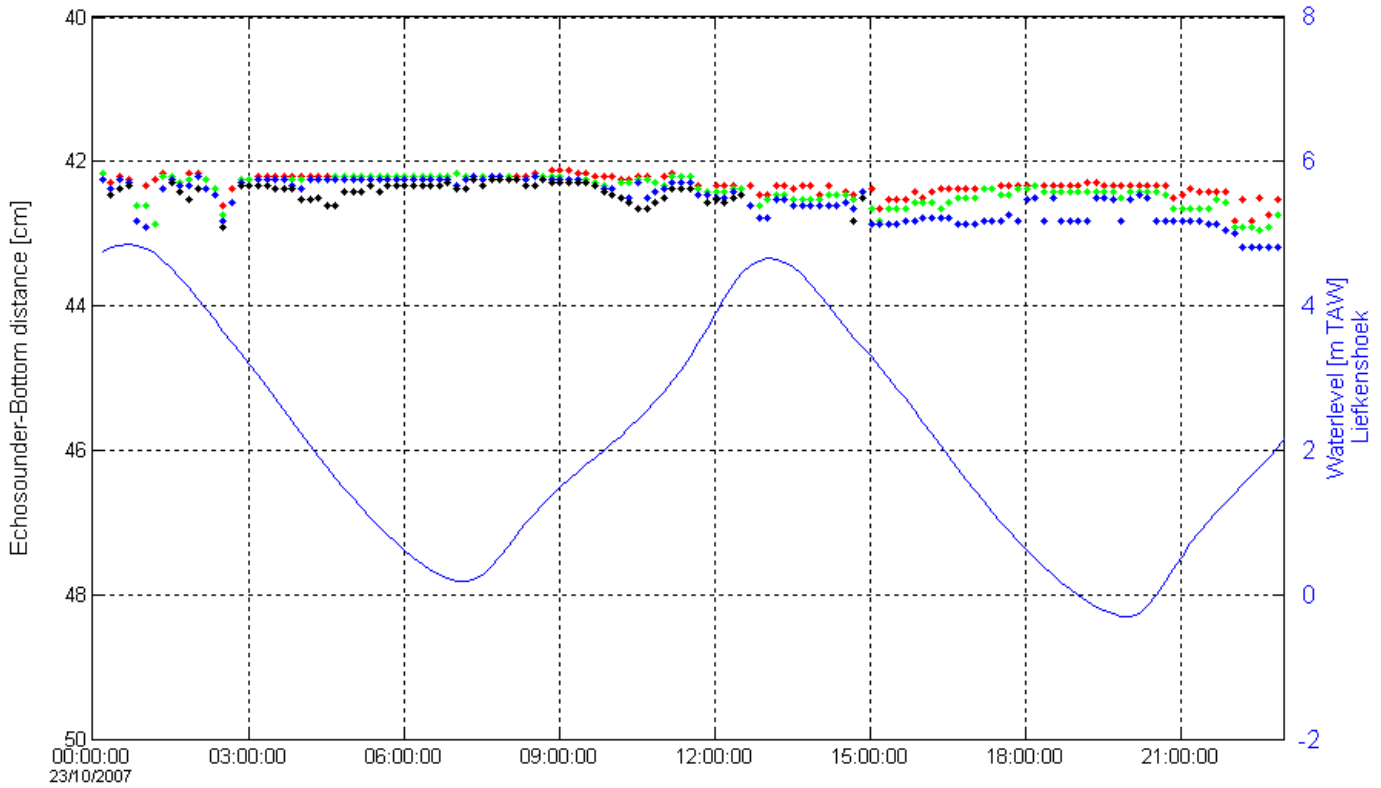
| Location: | Date: |
|---|---|
| Deurganckdok Sill | Avg Tide 23/11 – 24/11 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok - Near bed continuous monitoring – Autumn 2007




SIGNAL 4
SIGNAL 3
SIGNAL 2
SIGNAL 1

Legend

Echosounder – bottom distance
Waterlevel [mTAW] at Liefkenshoek

Location:
Deurganckdok Sill

Date:
Avg Tide 23/11 – 24/11

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

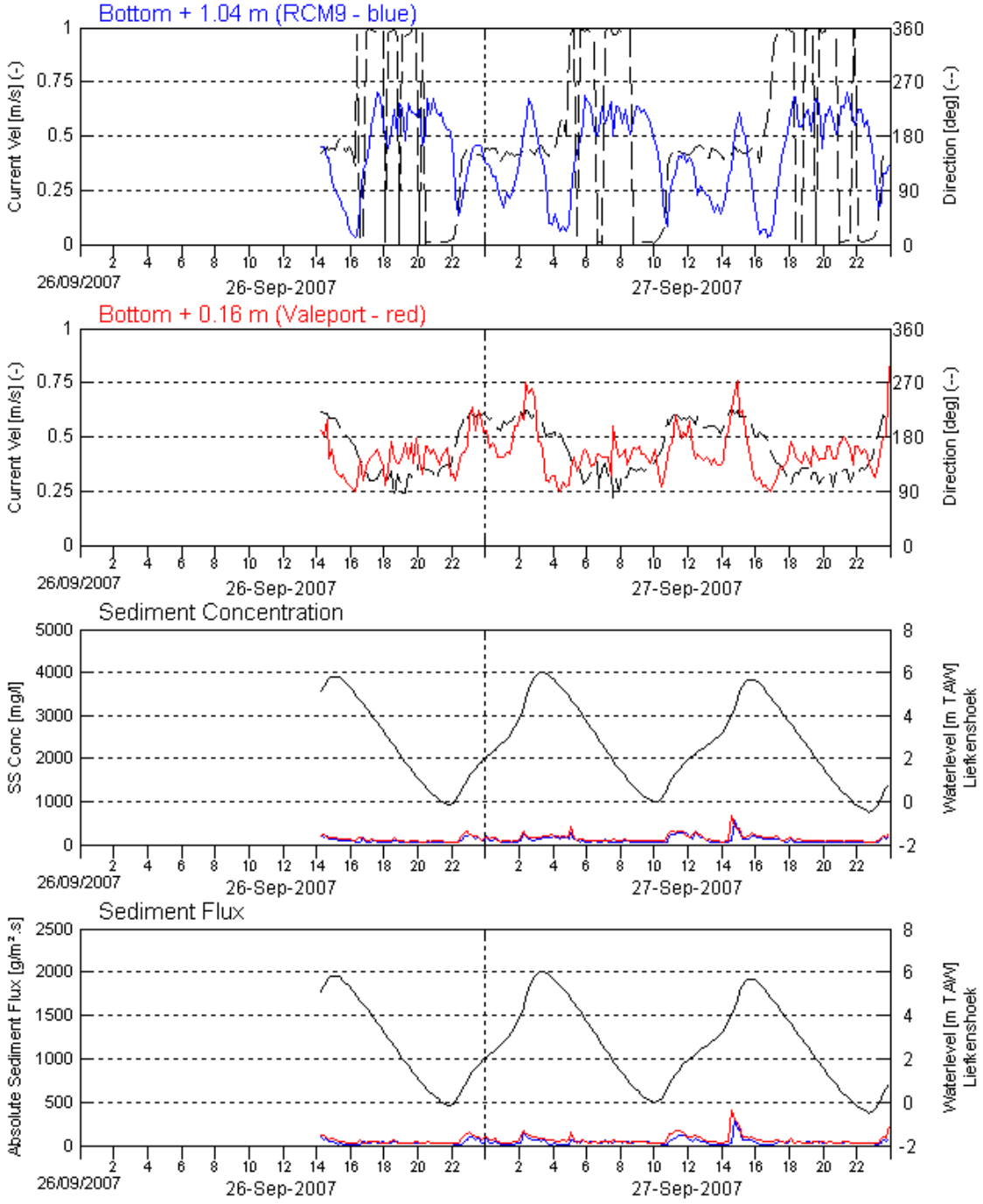
*I/RA/11283/07.093/MSA*

# APPENDIX D.

# TIMESERIES RCM9 & VALEPORT

# D.1 CDW frame

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

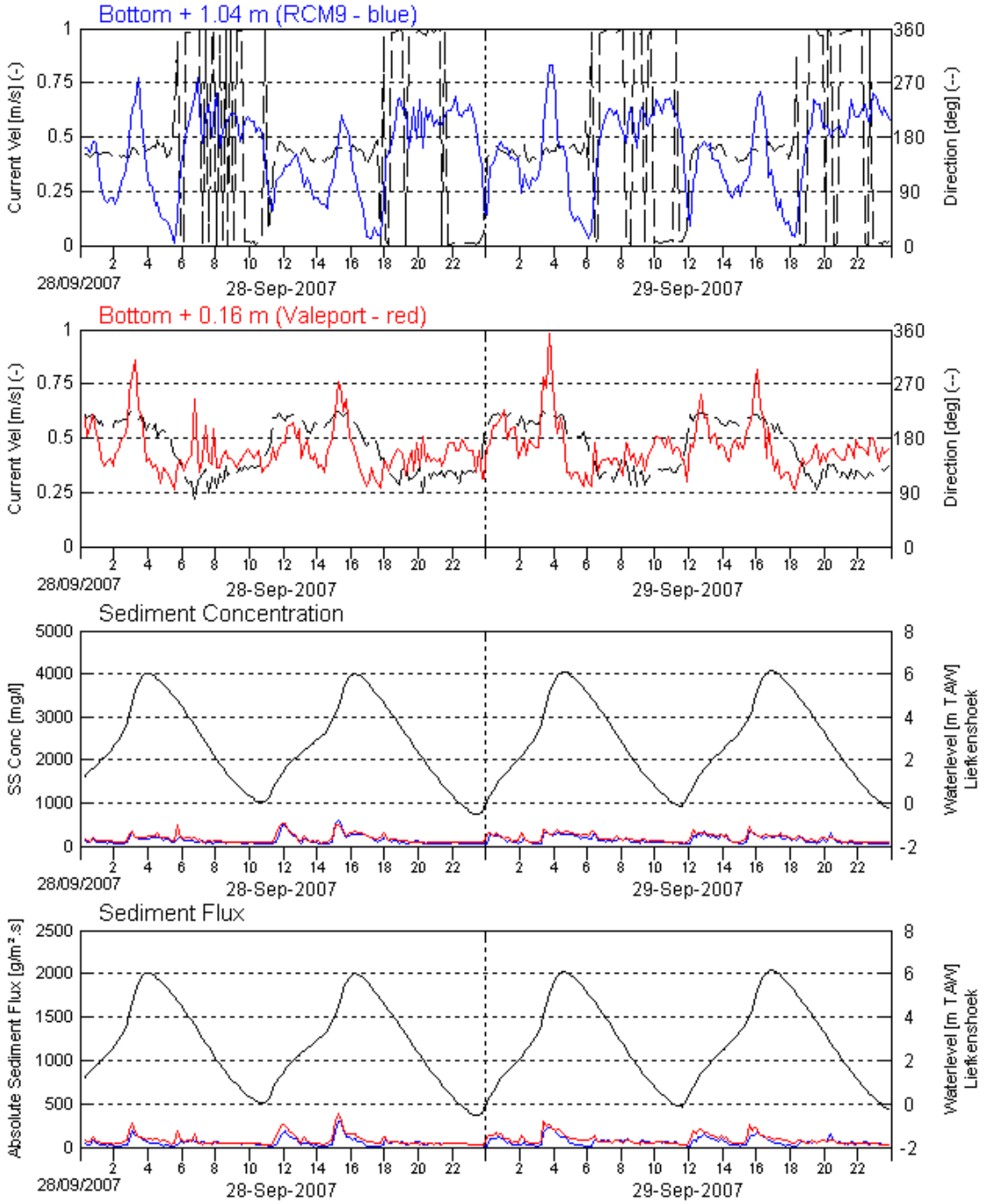
Date: 26/09/2007– 27/09/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

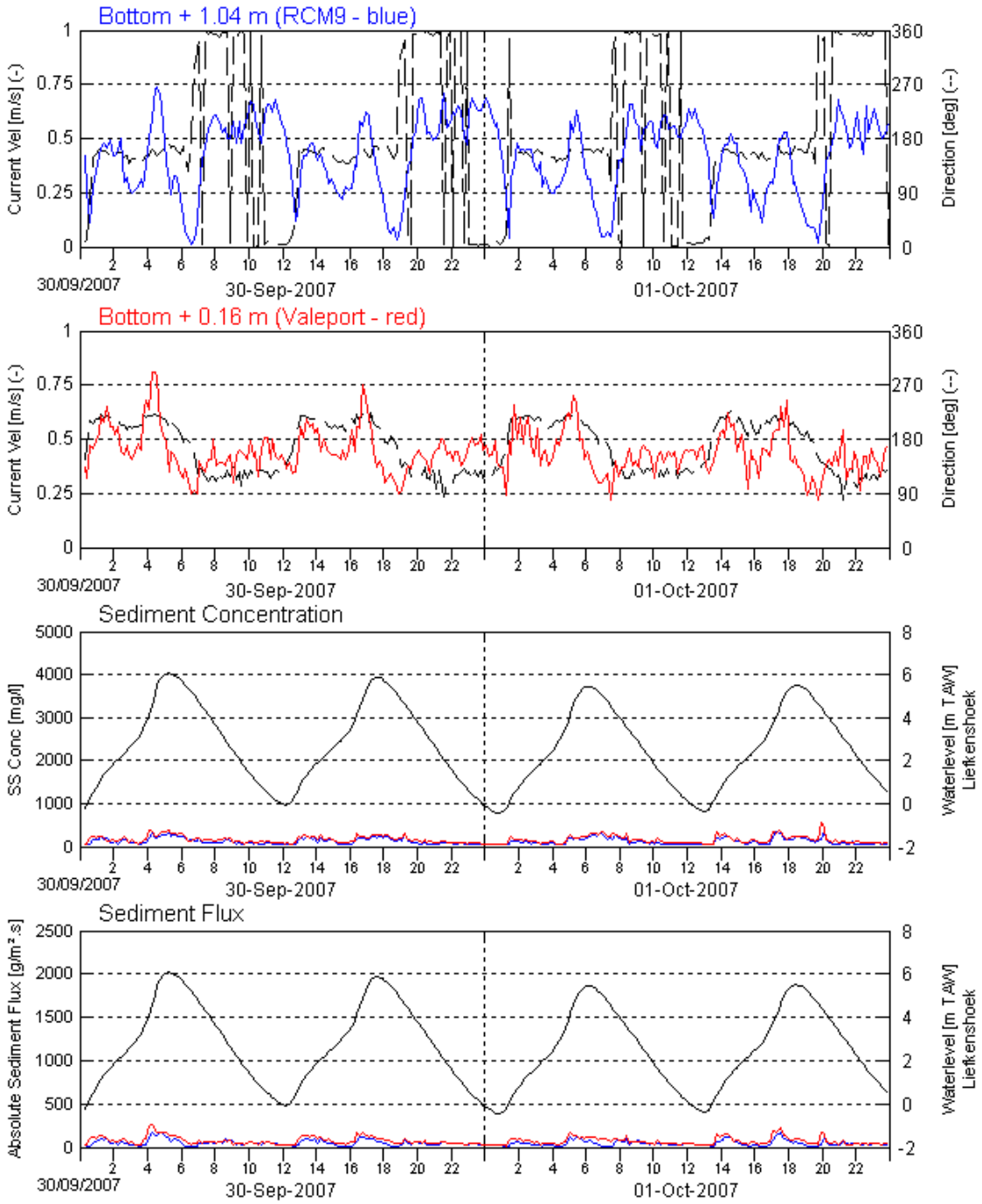
Date: 28/09/2007– 29/09/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

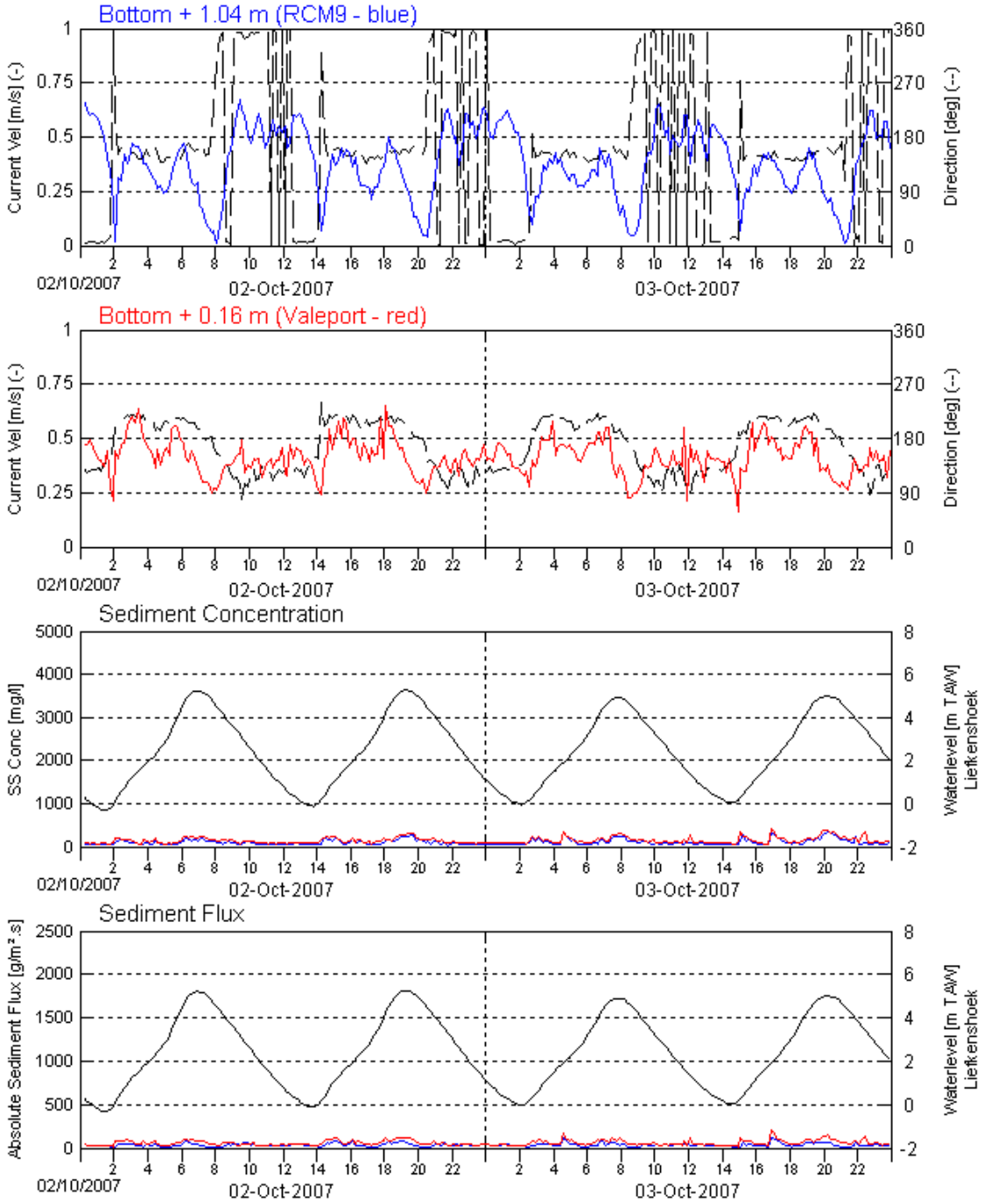
Date: 30/09/2007– 01/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

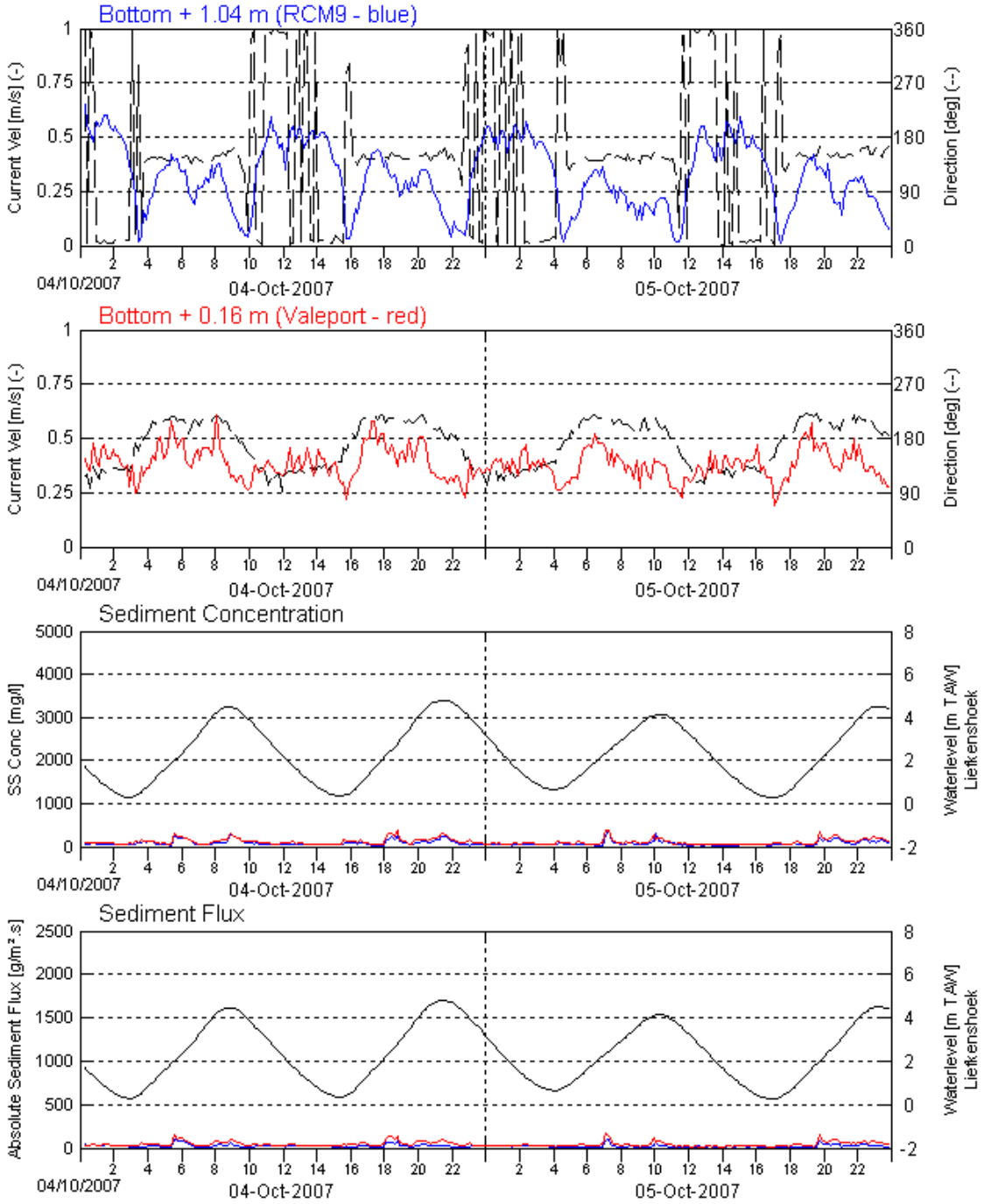
| Location: | Date: |
|---|---|
| Deurganckdok CDW | 02/10/2007– 03/10/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

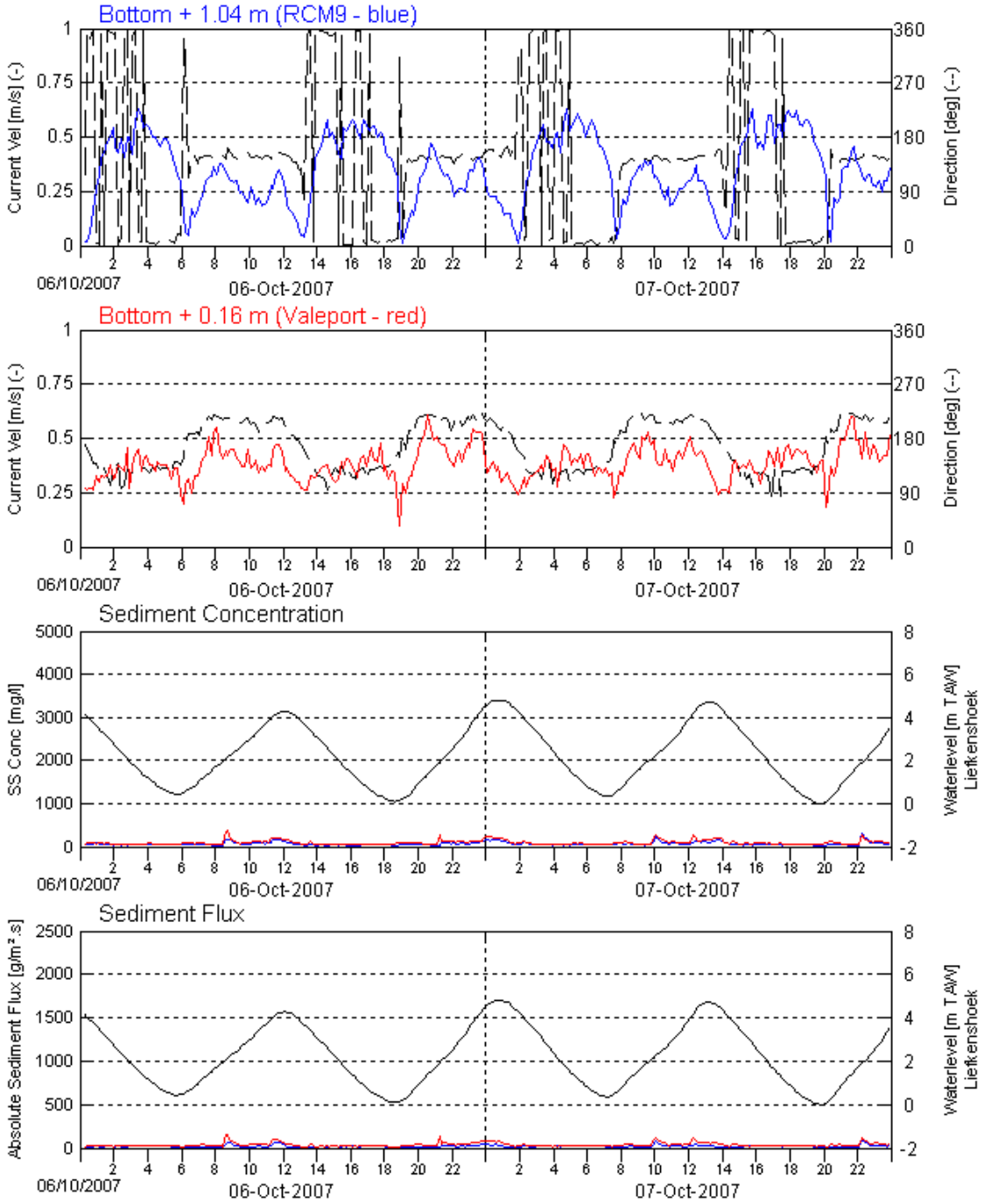
Date: 04/10/2007– 05/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

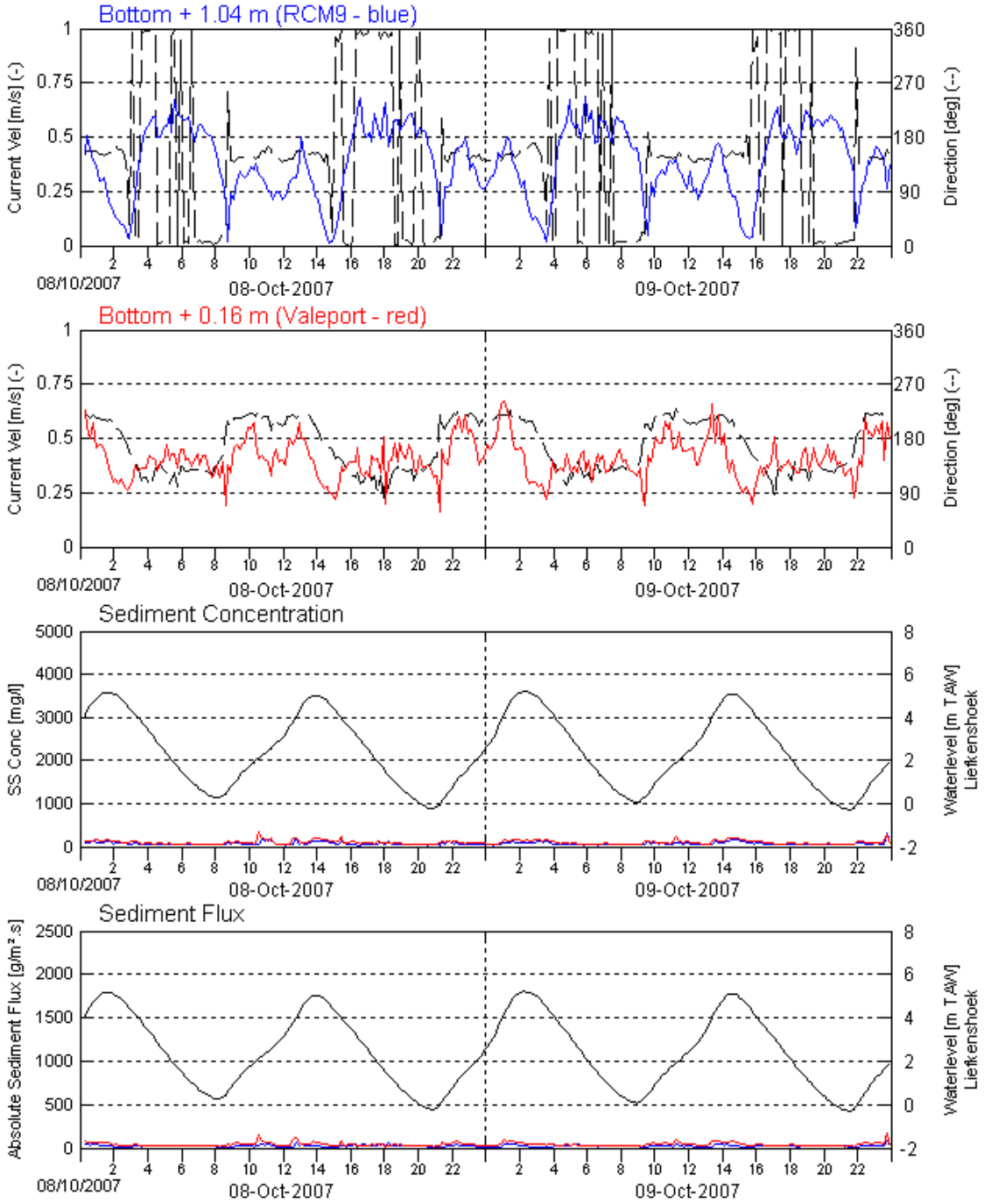
Date: 06/10/2007– 07/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

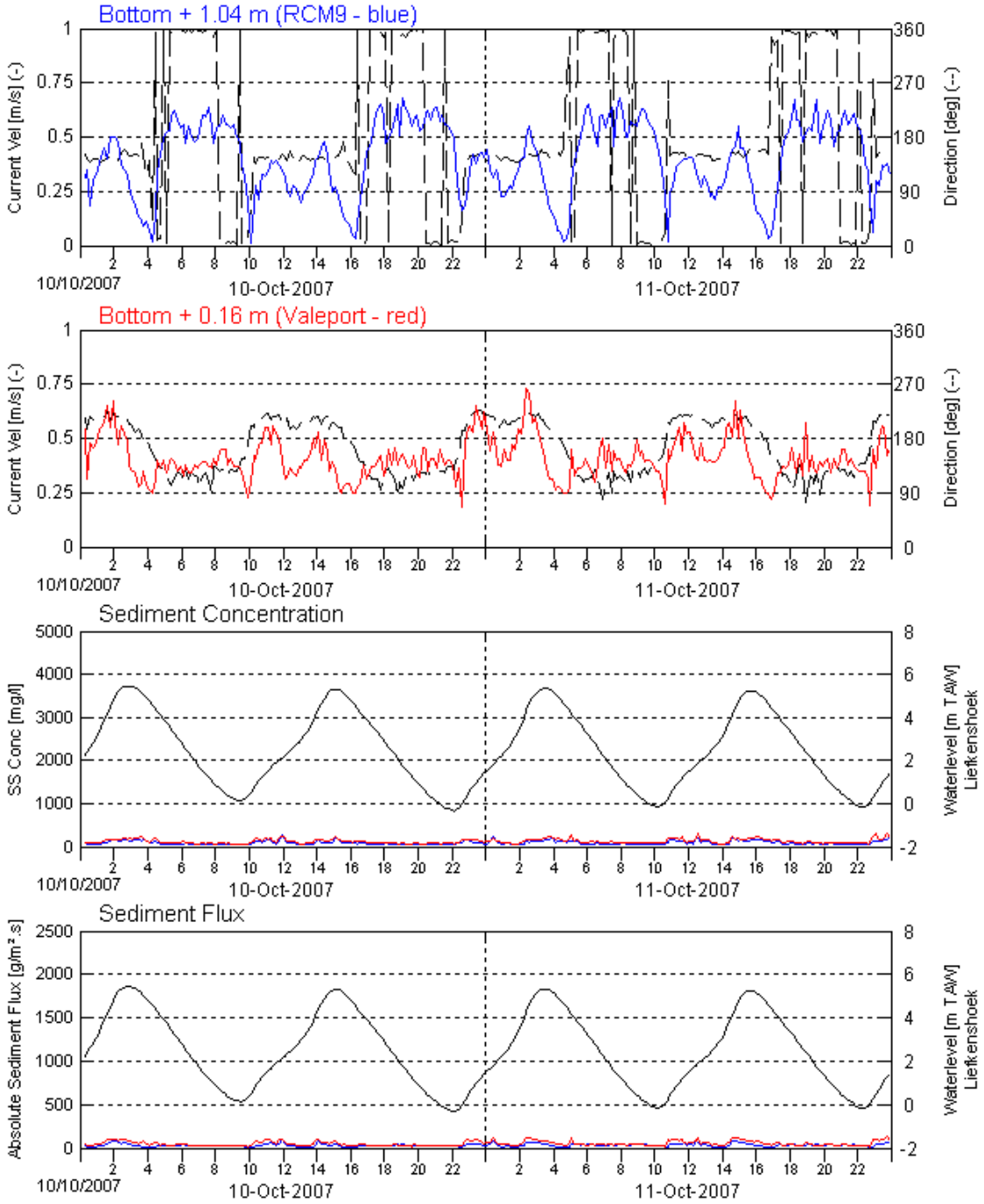
Date: 08/10/2007– 09/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

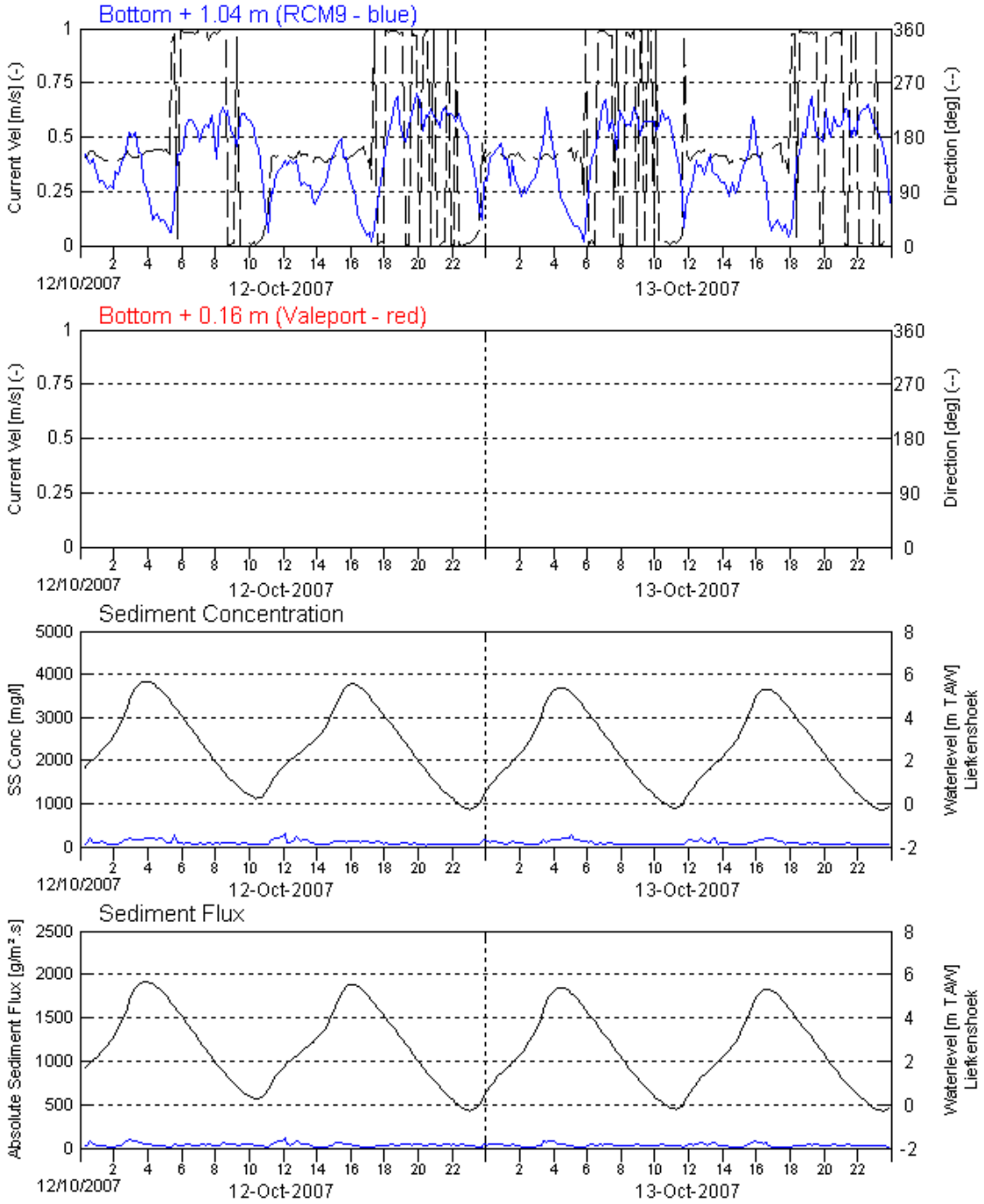
Date: 10/10/2007– 11/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

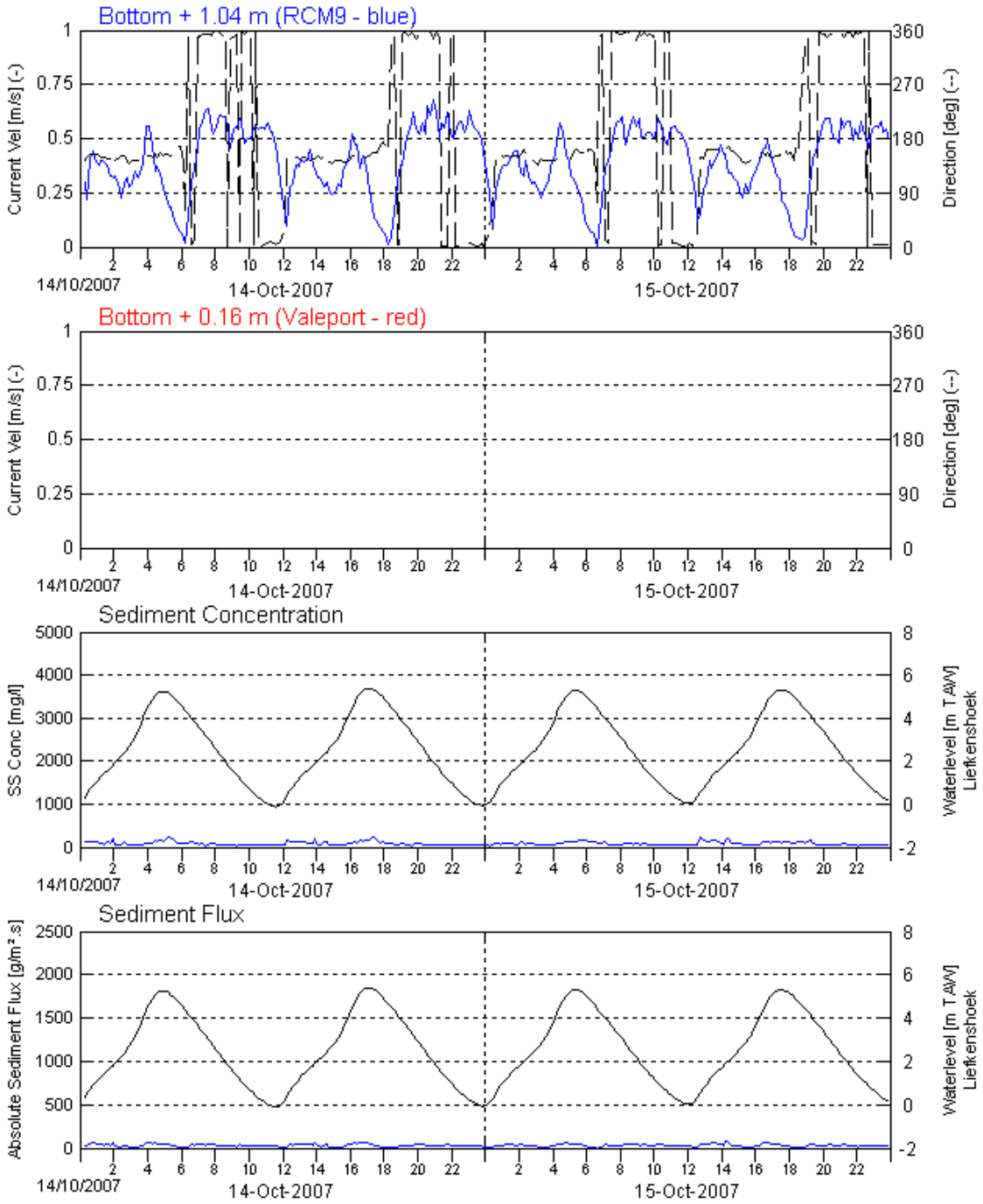
*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | *Data processed by:* IMDC |
|---|---|---|
| Location: Deurganckdok CDW | Date: 12/10/2007– 13/10/2007 | *In association with:* WL \| delft hydraulics, GEMS International |
| | | *I/RA/11283/07.093/MSA* |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

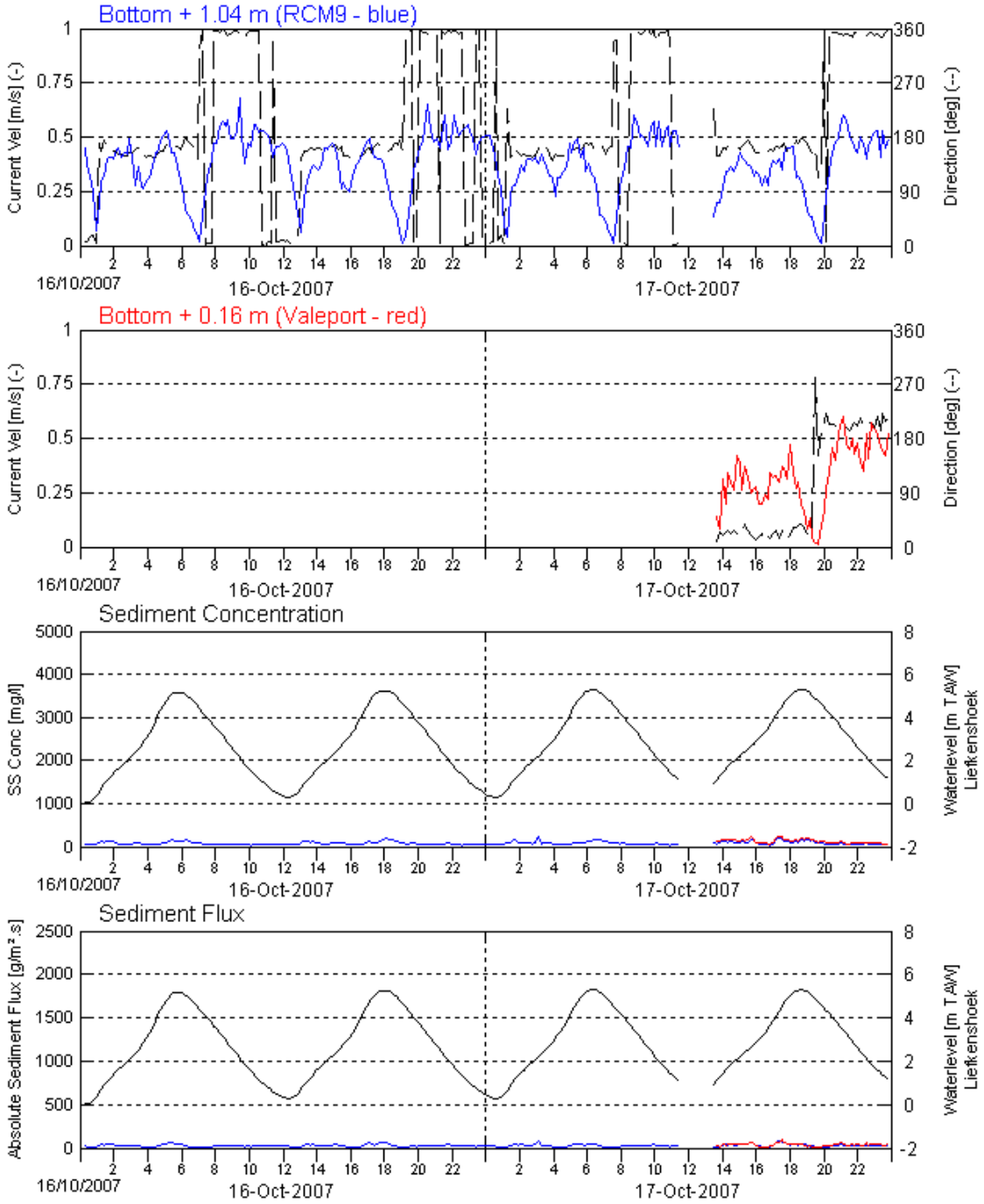
Date: 14/10/2007– 15/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

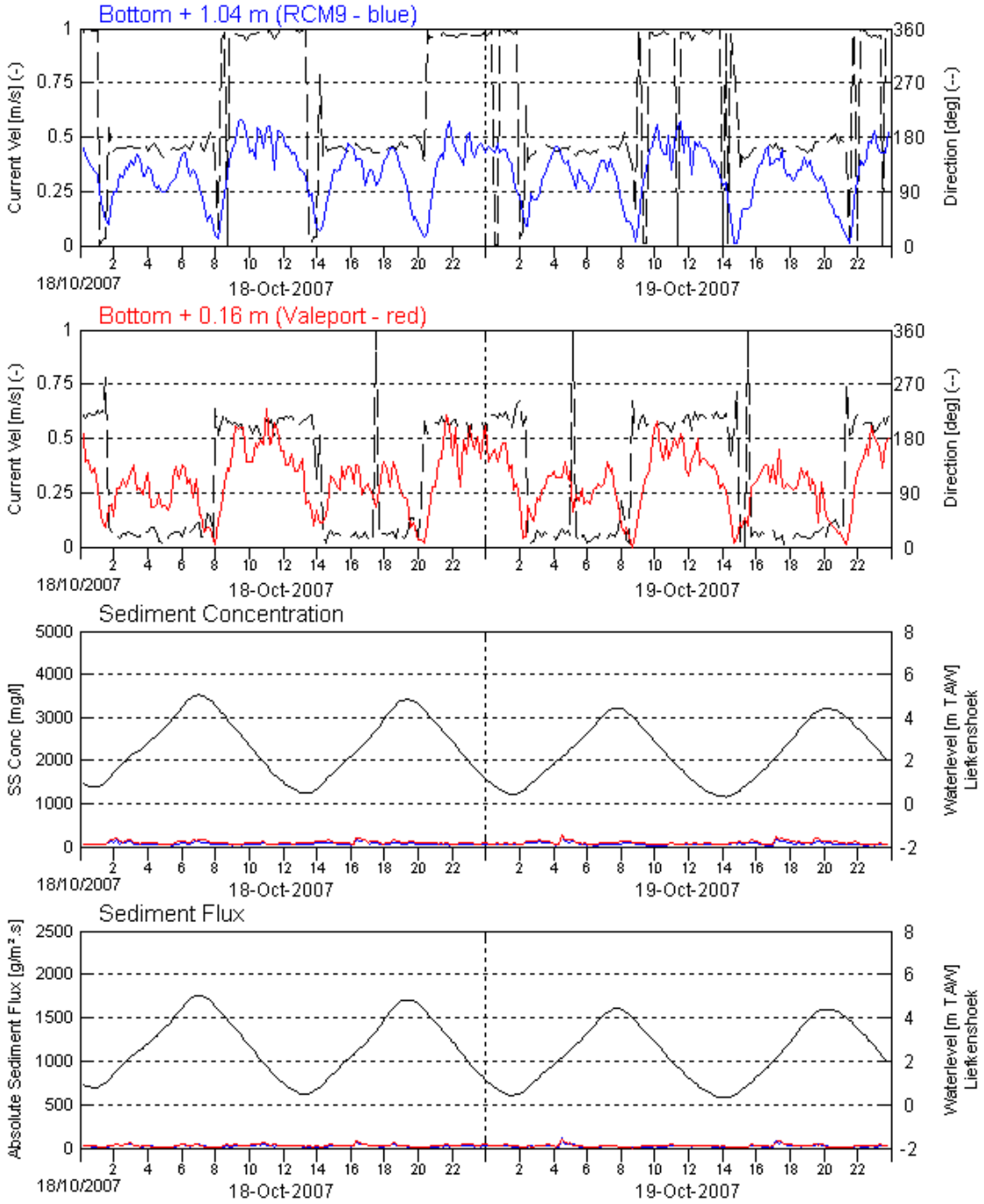
*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007



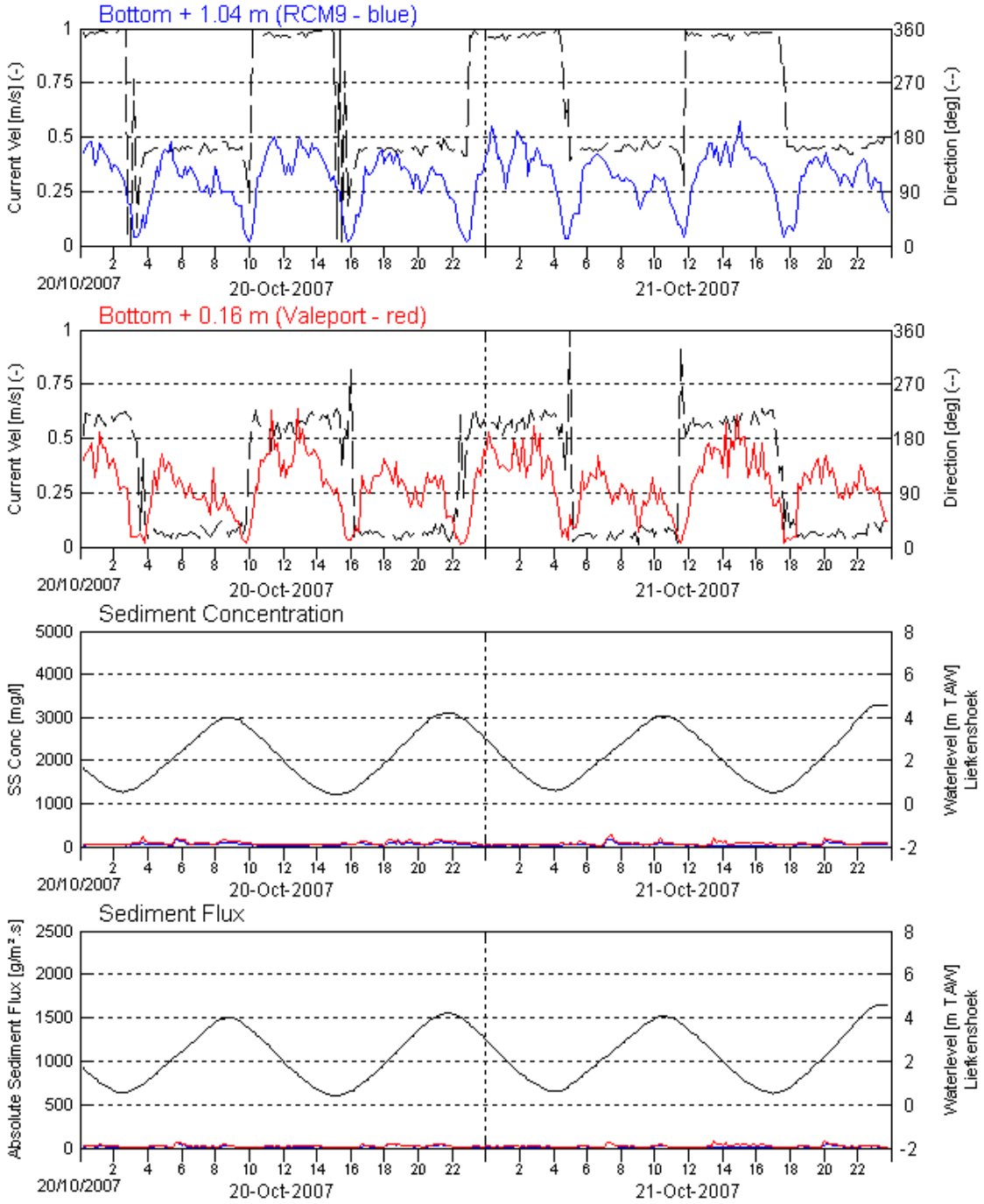

| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | *Data processed by:* IMDC |
|---|---|---|
| Location: Deurganckdok CDW | Date: 16/10/2007– 17/10/2007 | *In association with:* WL \| delft hydraulics, GEMS International |
| | | *I/RA/11283/07.093/MSA* |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




| | | |
|---|---|---|
| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | *Data processed by:* IMDC |
| Location: Deurganckdok CDW | Date: 18/10/2007– 19/10/2007 | *In association with:* WL \| delft hydraulics, GEMS International |
| | | *I/RA/11283/07.093/MSA* |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

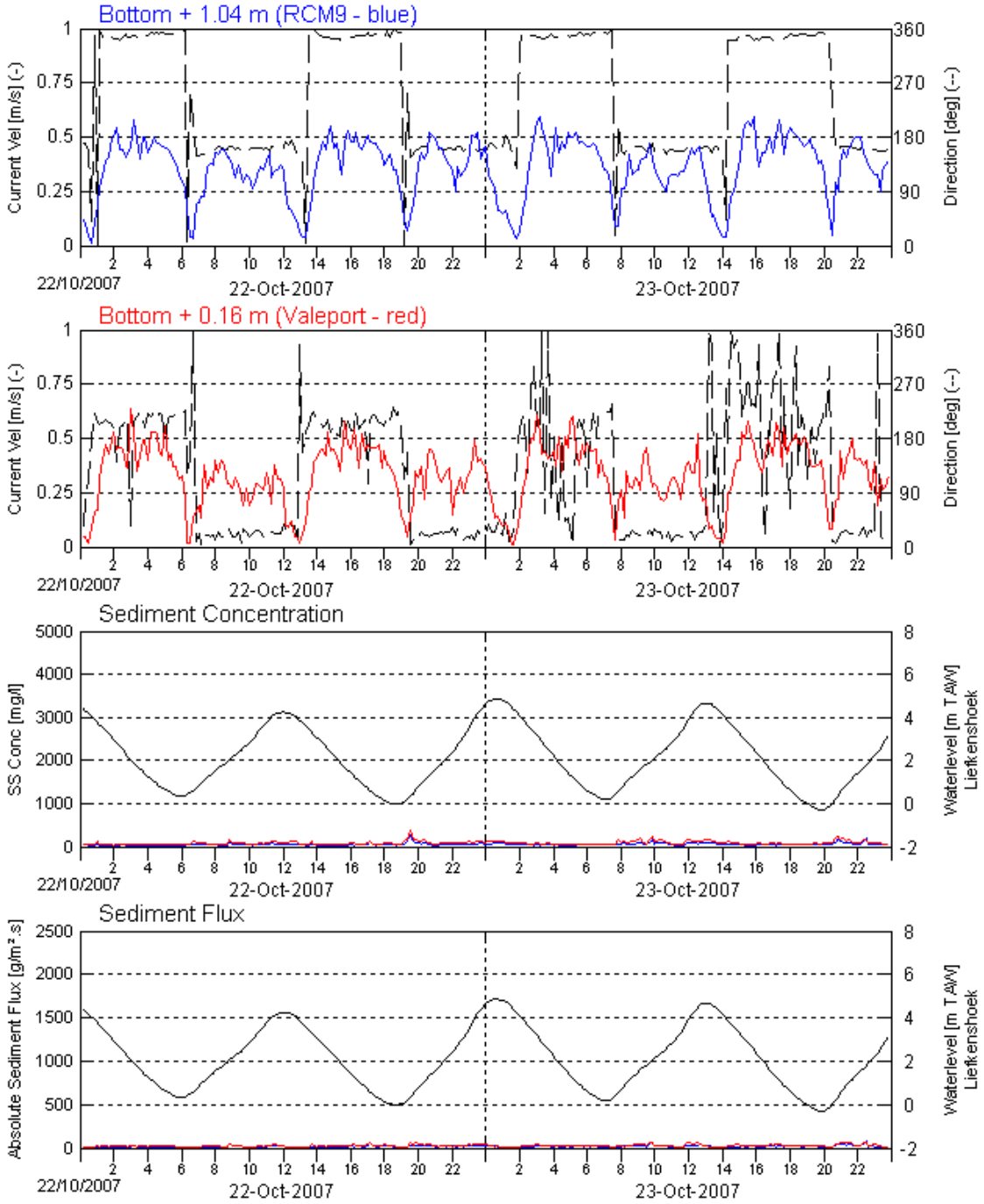
Date: 20/10/2007– 21/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

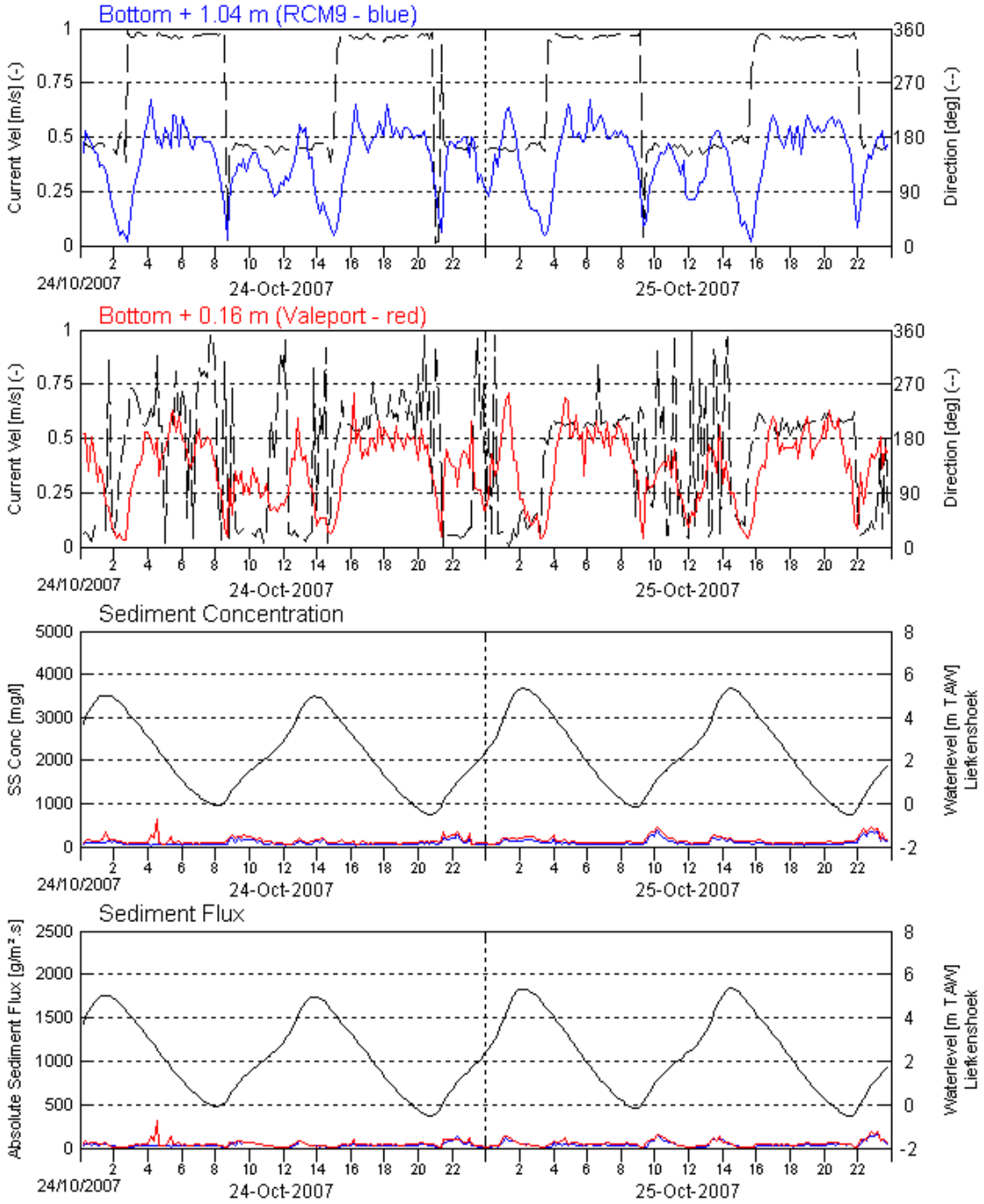
Date: 22/10/2007– 23/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

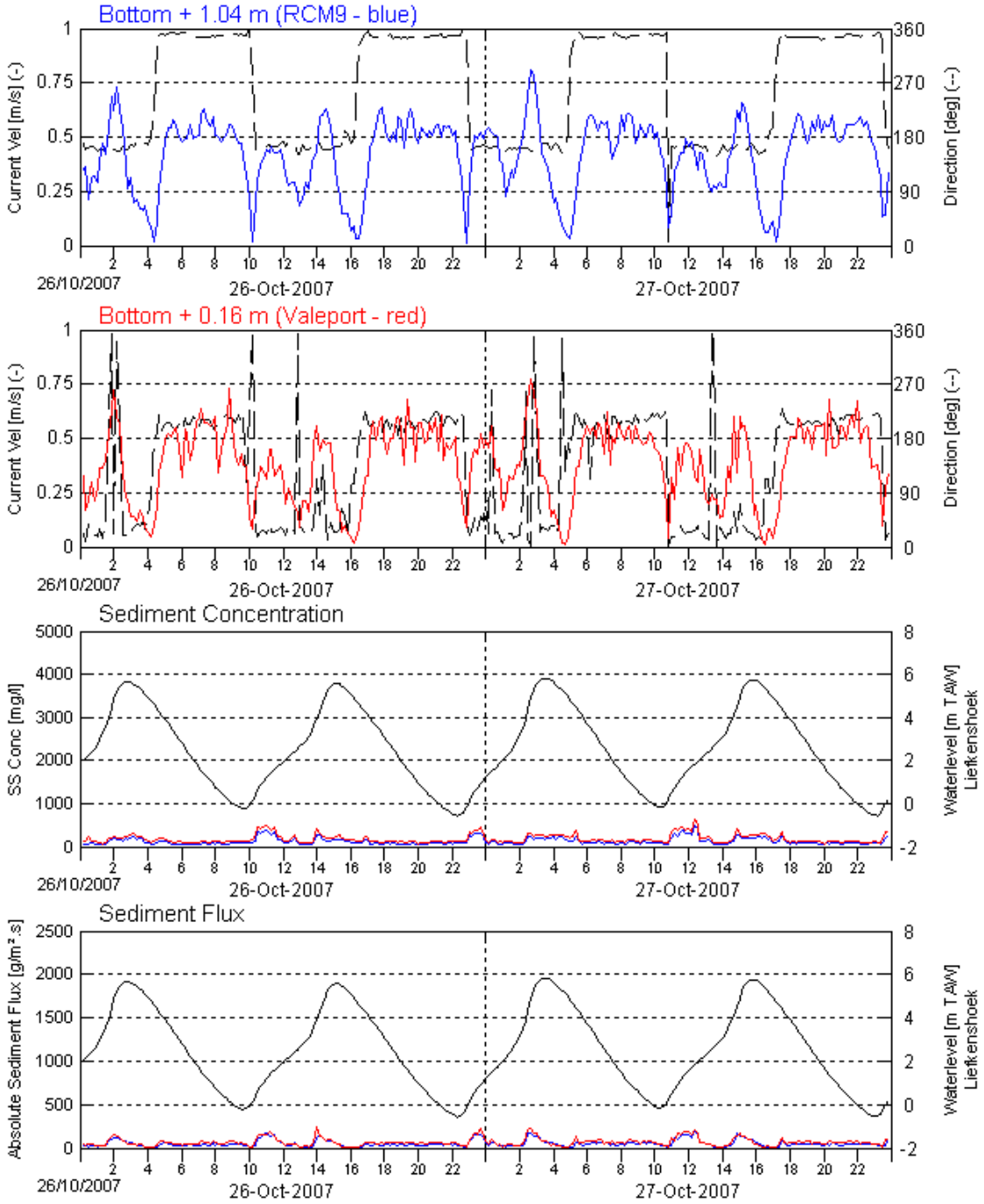
*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




| | | |
|---|---|---|
| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | *Data processed by:* IMDC |
| Location: Deurganckdok CDW | Date: 24/10/2007– 25/10/2007 | *In association with:* WL \| delft hydraulics, GEMS International |
| | | *I/RA/11283/07.093/MSA* |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

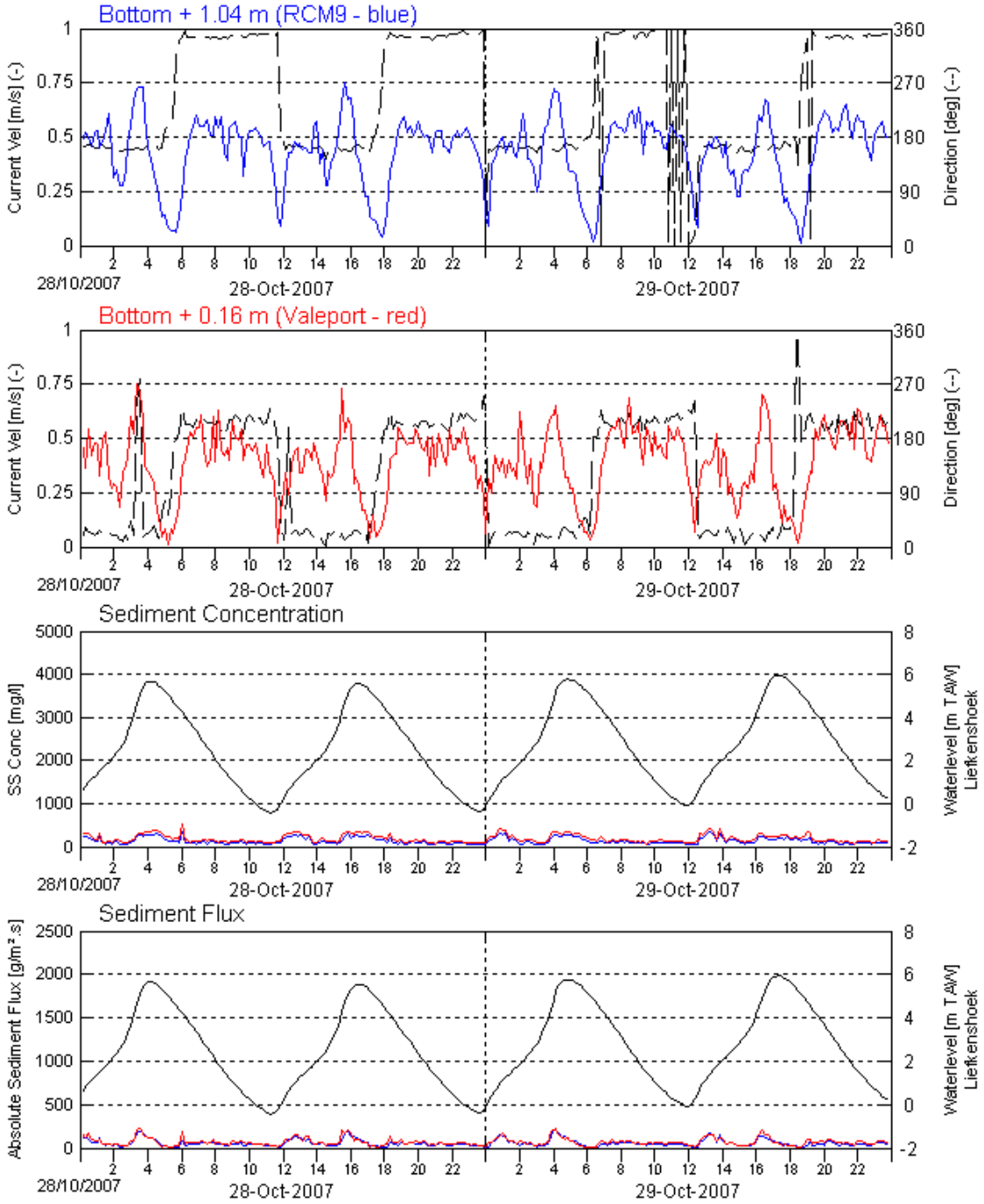
Date: 26/10/2007– 27/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

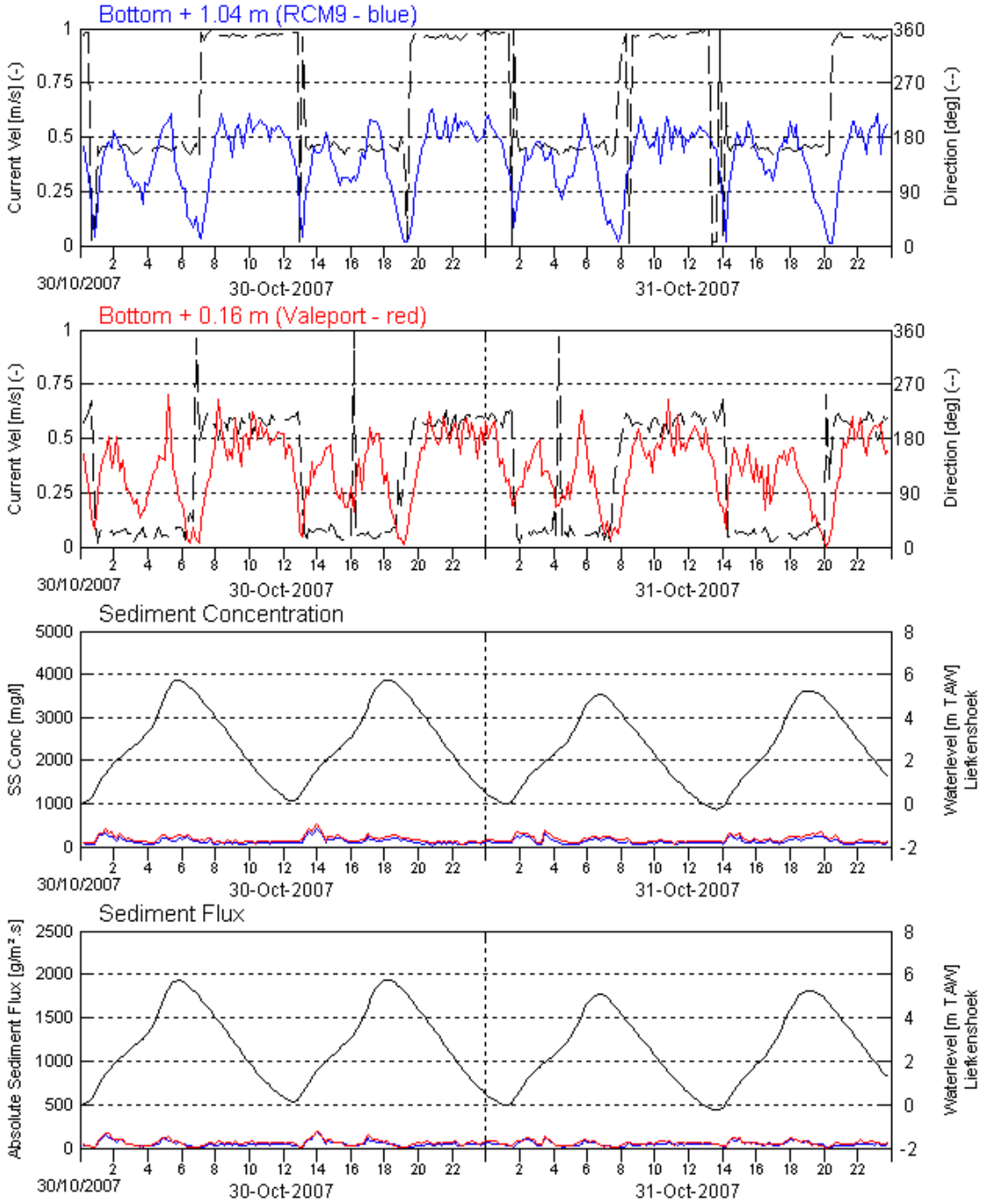
Date: 28/10/2007– 29/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

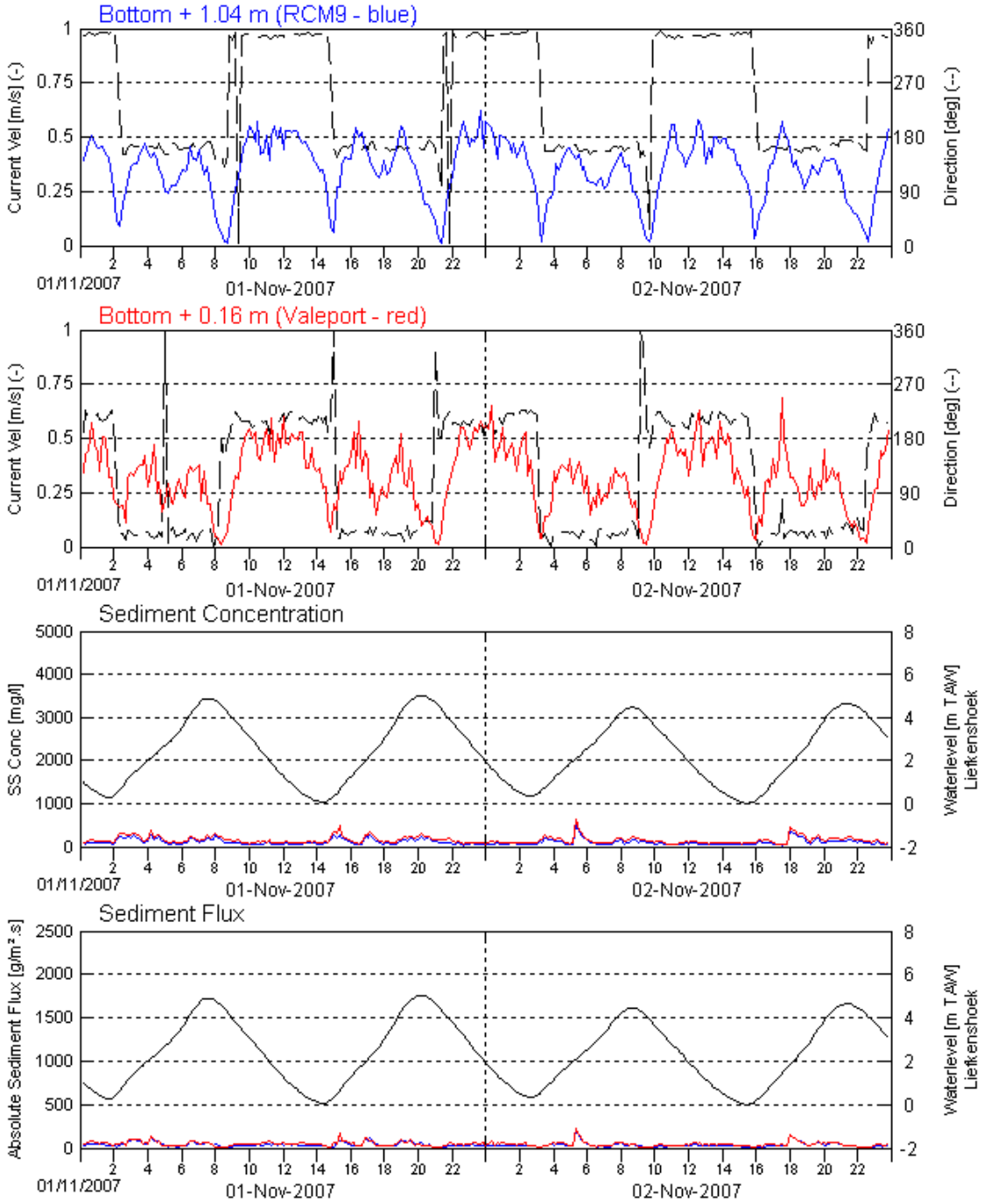
Date: 30/10/2007– 31/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

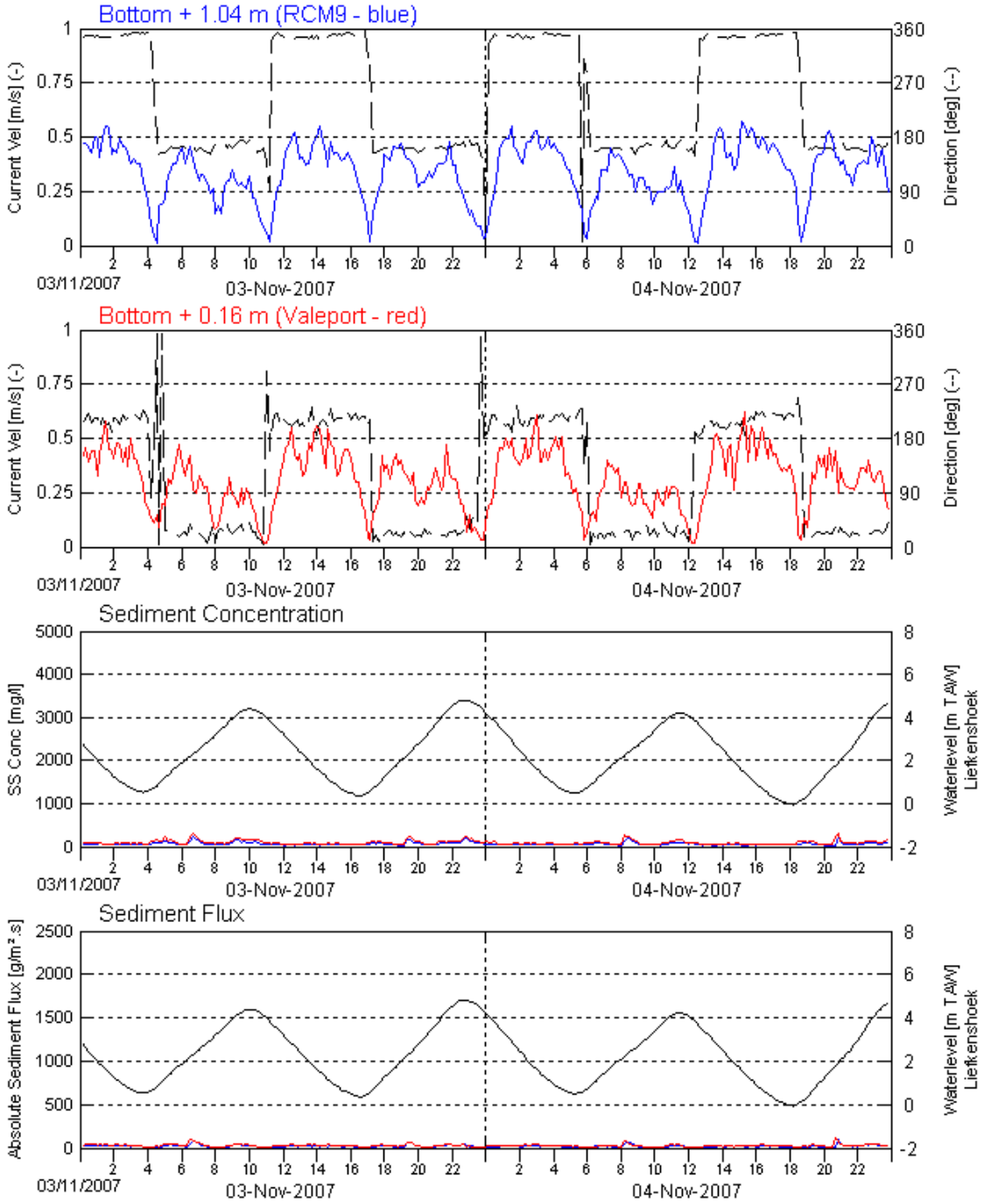
Date: 01/11/2007– 02/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

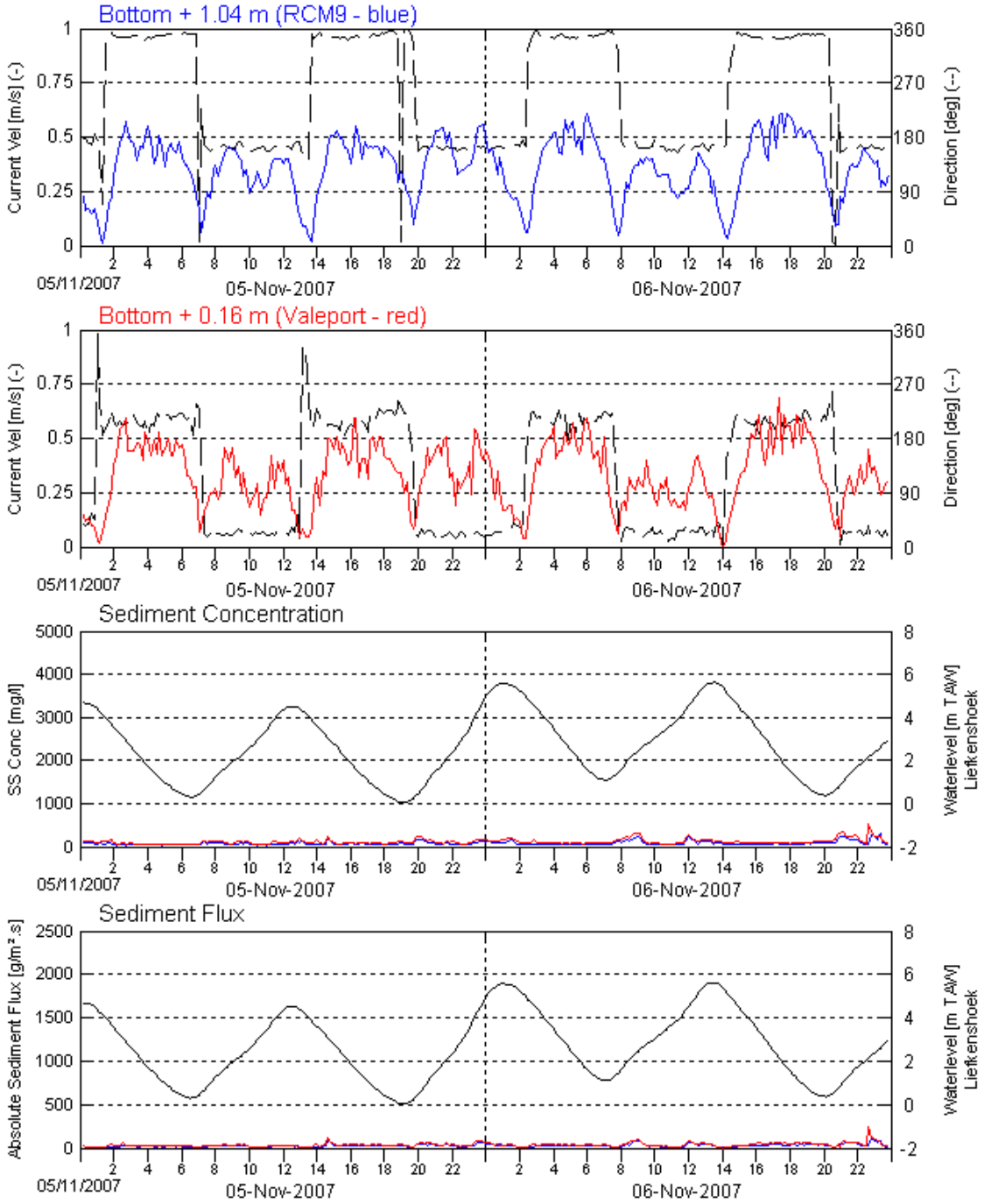
*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




| | | |
|---|---|---|
| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | *Data processed by:* IMDC |
| Location: Deurganckdok CDW | Date: 03/11/2007– 04/11/2007 | *In association with:* WL \| delft hydraulics, GEMS International |
| | | *I/RA/11283/07.093/MSA* |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok
CDW

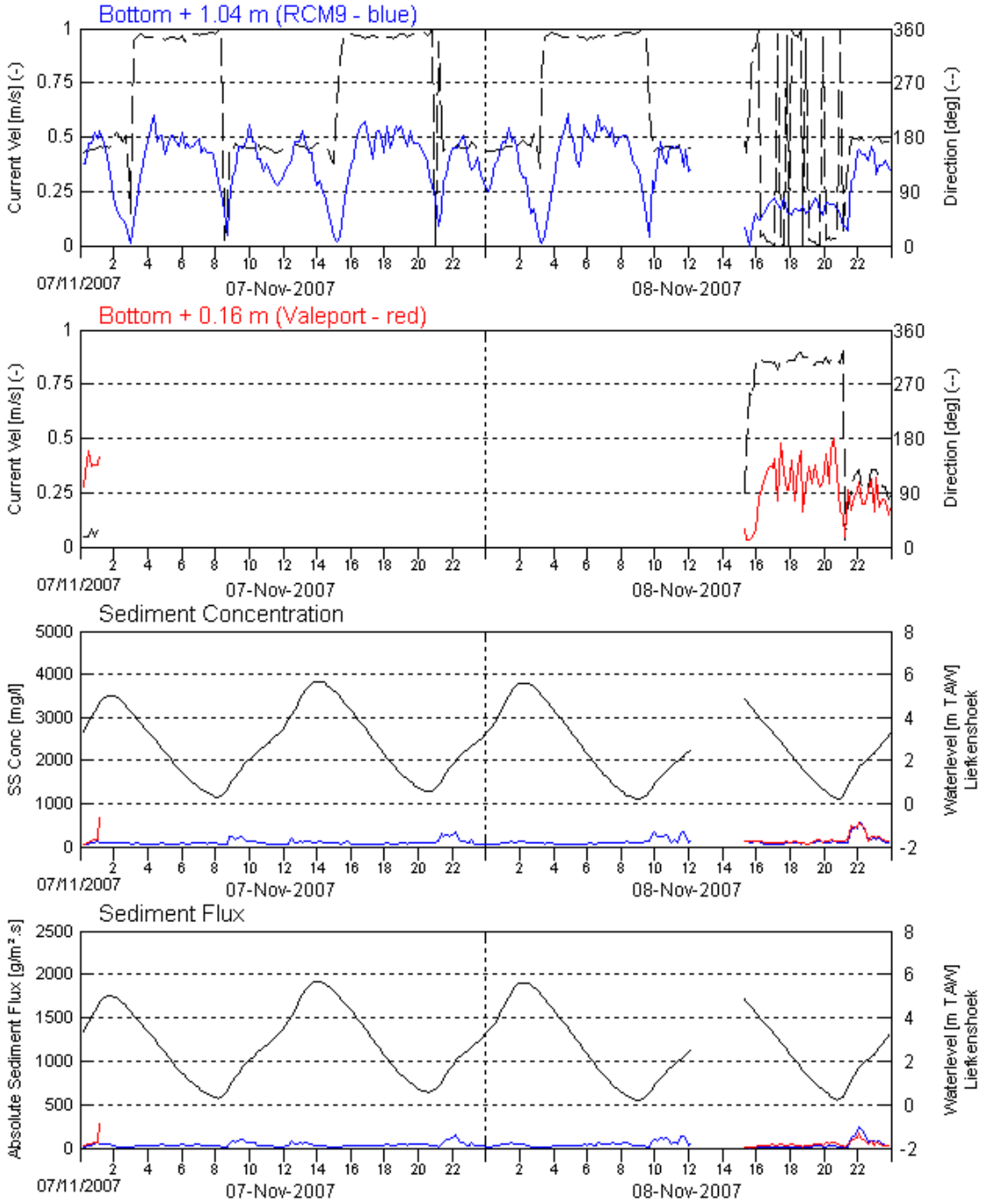
Date:
05/11/2007– 06/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

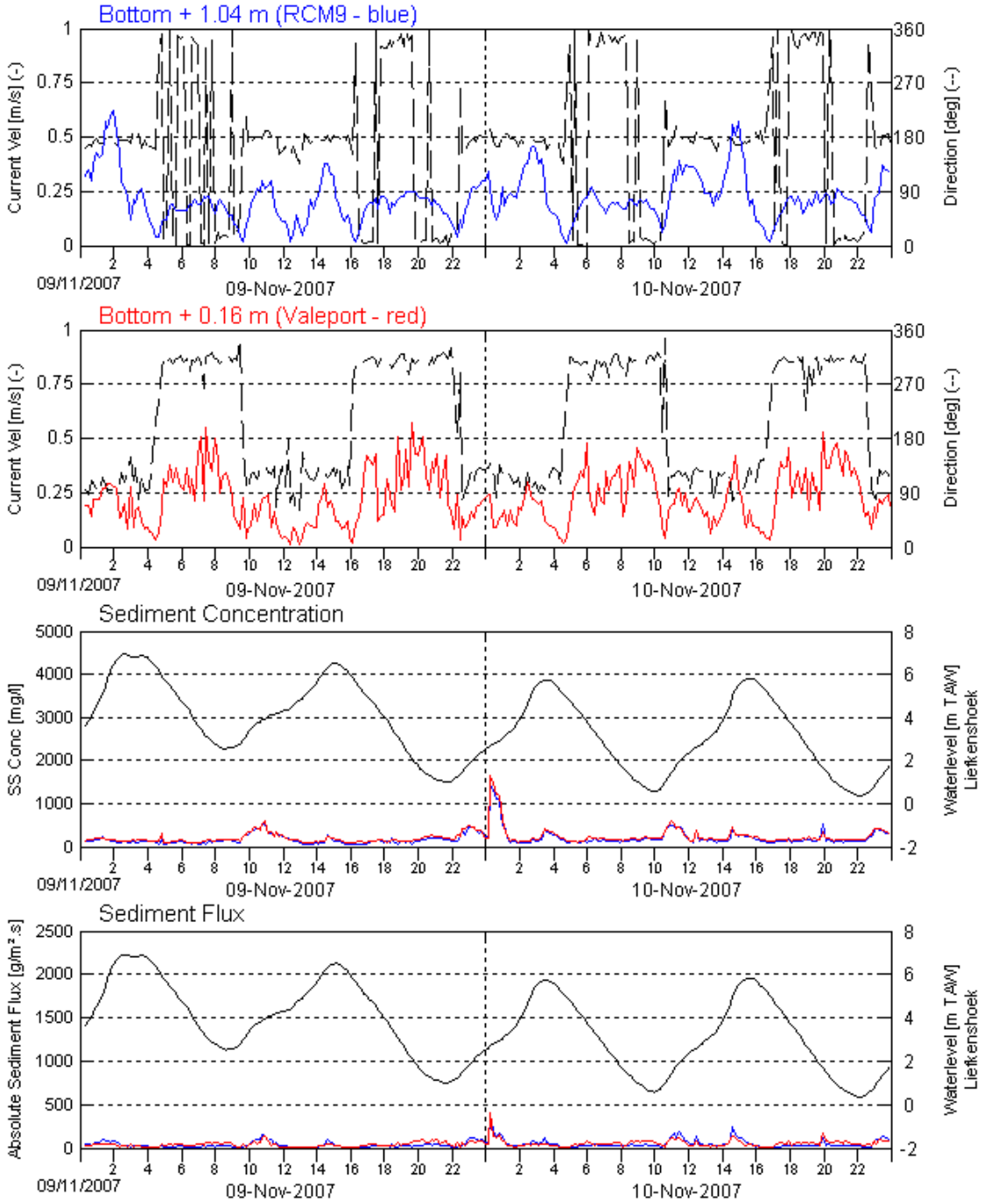
*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | *Data processed by:* IMDC |
|---|---|---|
| Location: Deurganckdok CDW | Date: 07/11/2007– 08/11/2007 | *In association with:* WL \| delft hydraulics, GEMS International |
| | | *I/RA/11283/07.093/MSA* |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

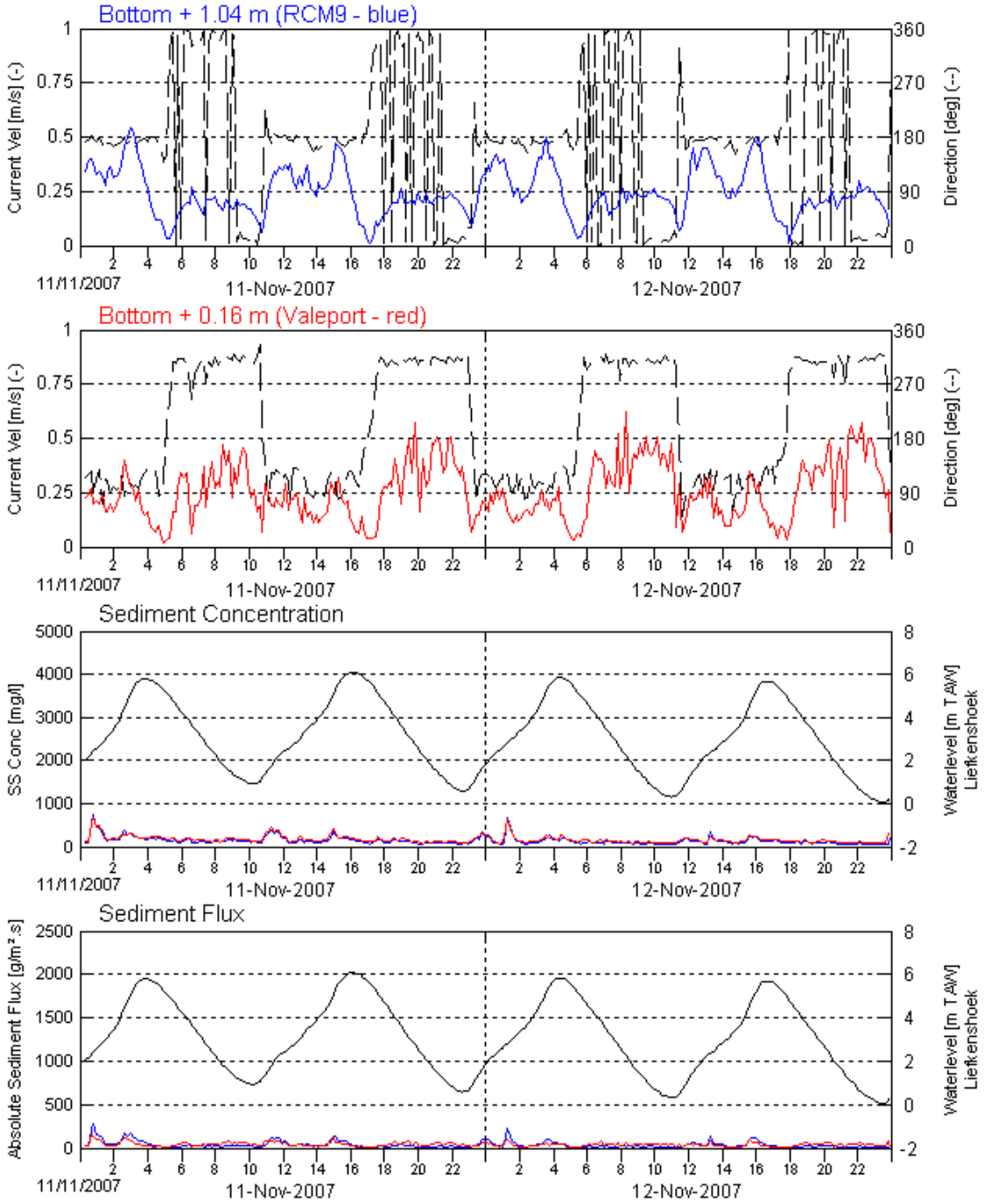
Date: 09/11/2007– 10/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

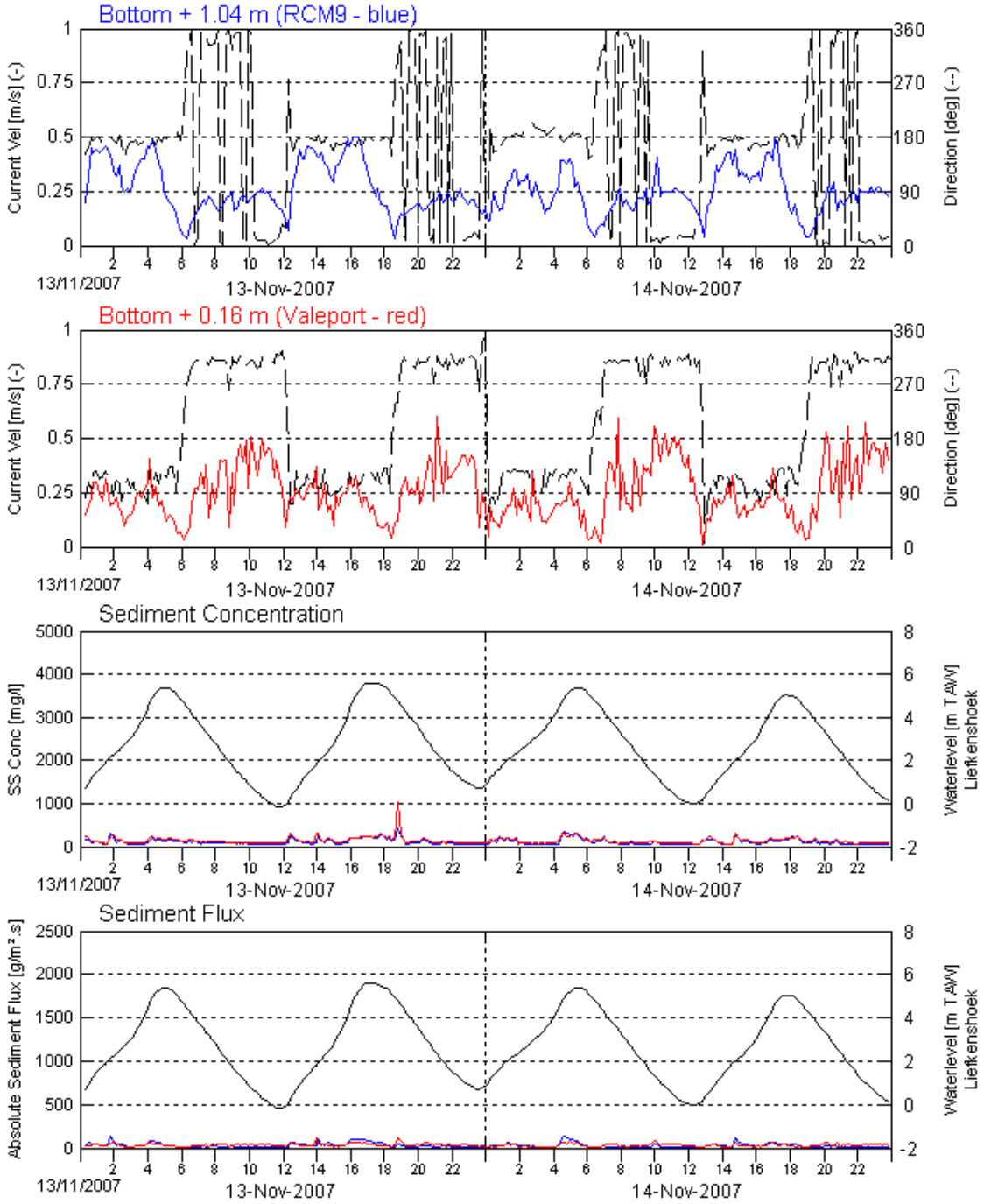
Date: 11/11/2007– 12/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

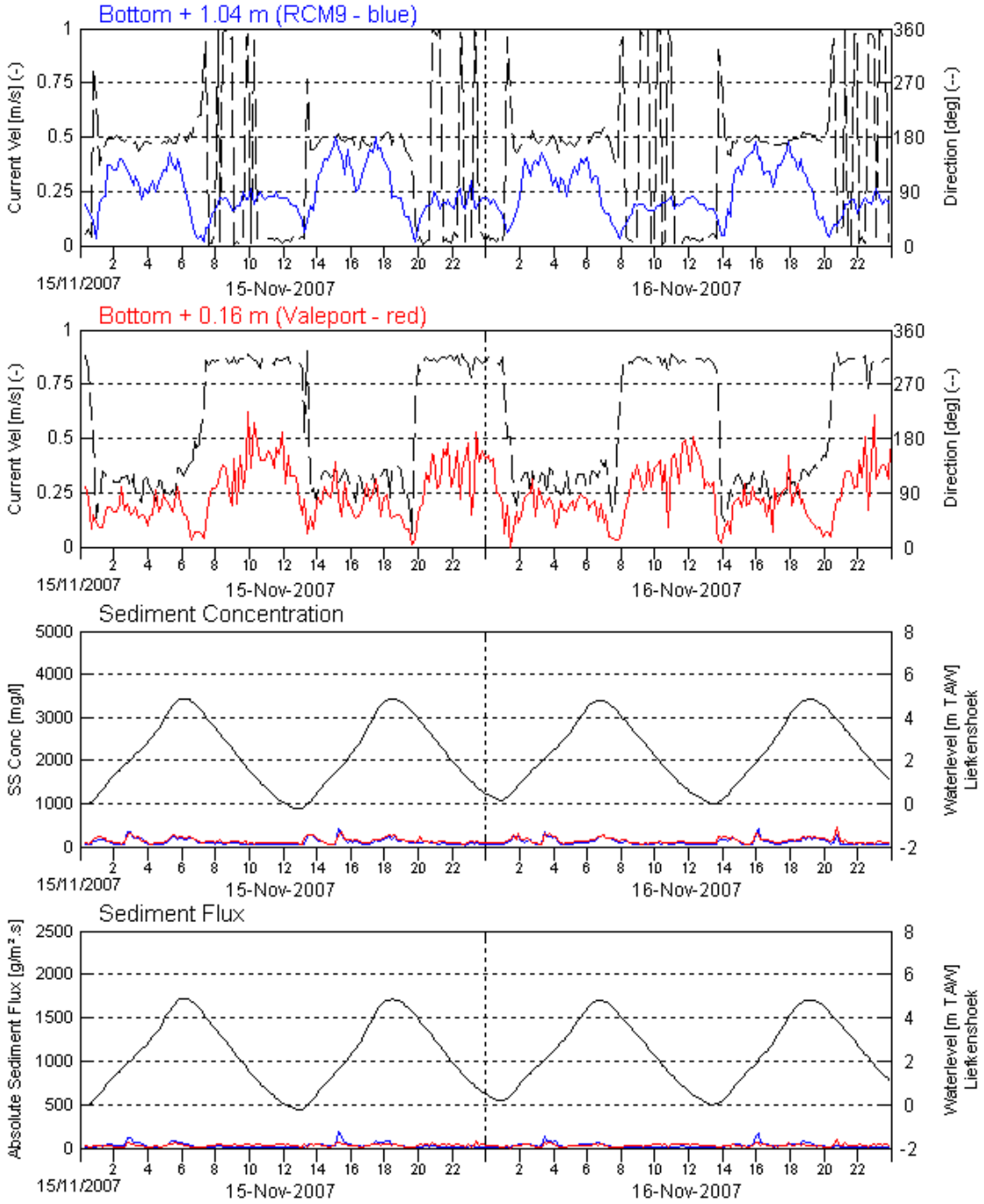
Date: 13/11/2007– 14/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

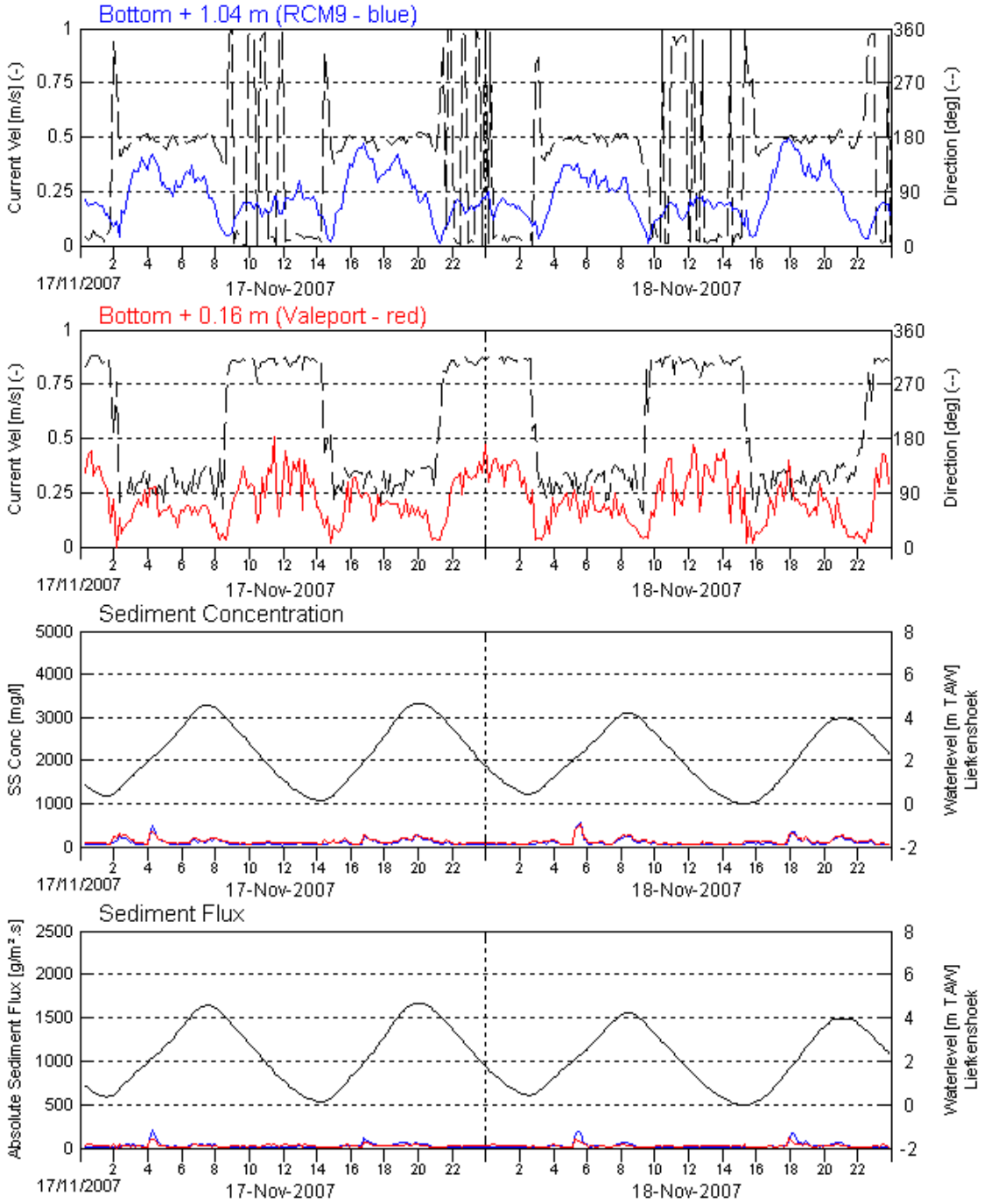
*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




| | | |
|---|---|---|
| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | *Data processed by:* IMDC |
| Location: Deurganckdok CDW | Date: 15/11/2007– 16/11/2007 | *In association with:* WL \| delft hydraulics, GEMS International |
| | | *I/RA/11283/07.093/MSA* |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

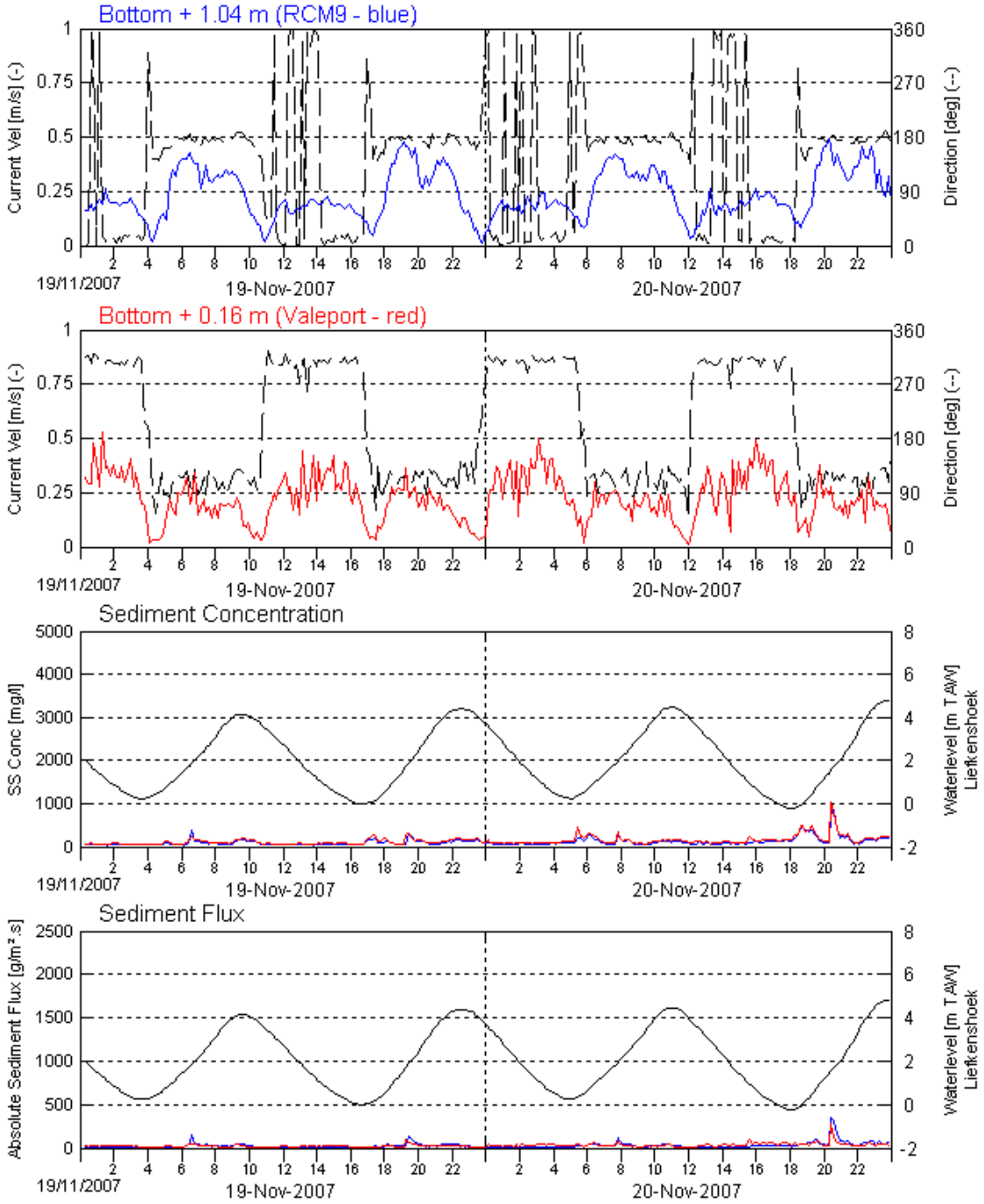
Date: 17/11/2007– 18/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

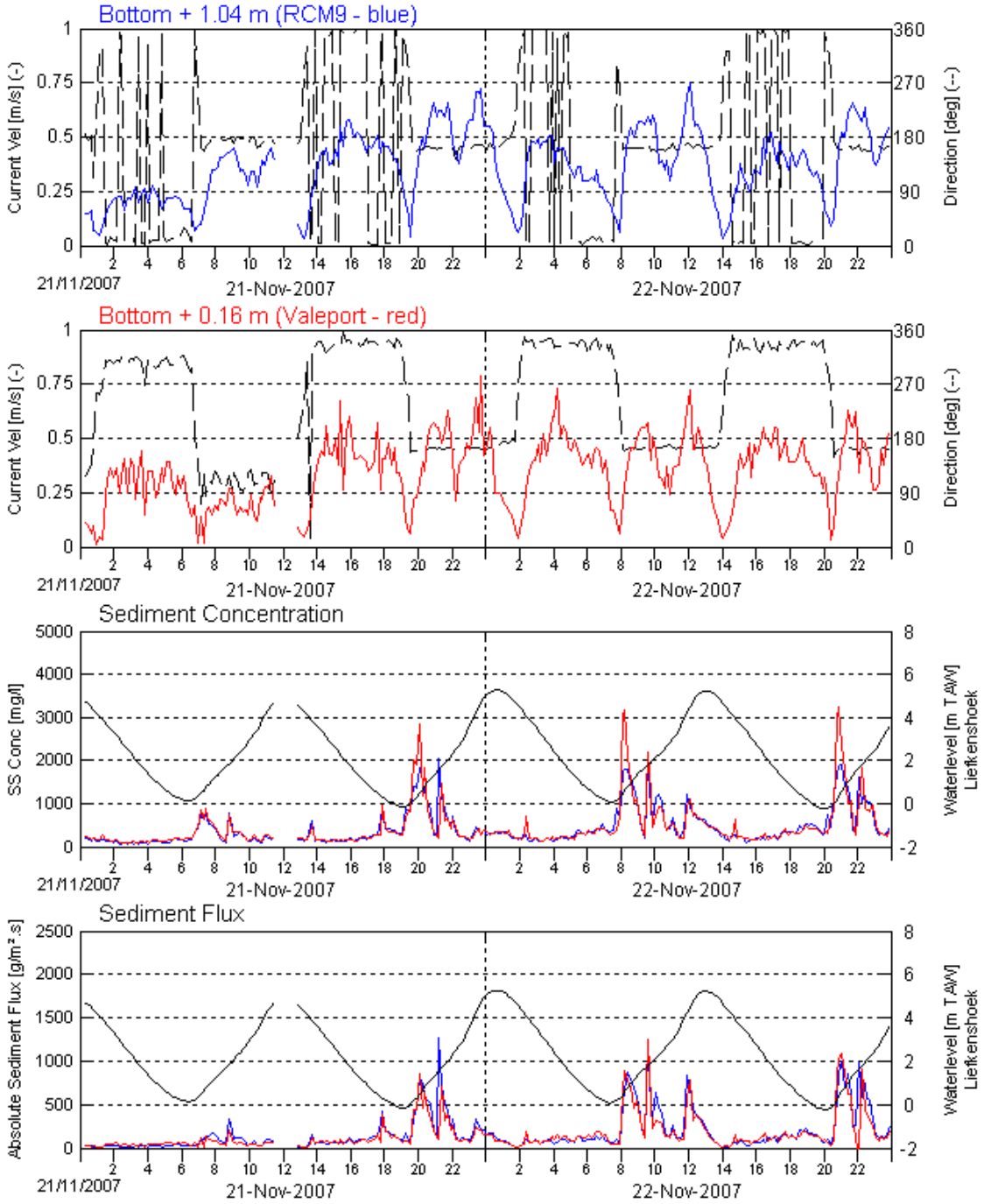
Date: 19/11/2007– 20/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok CDW

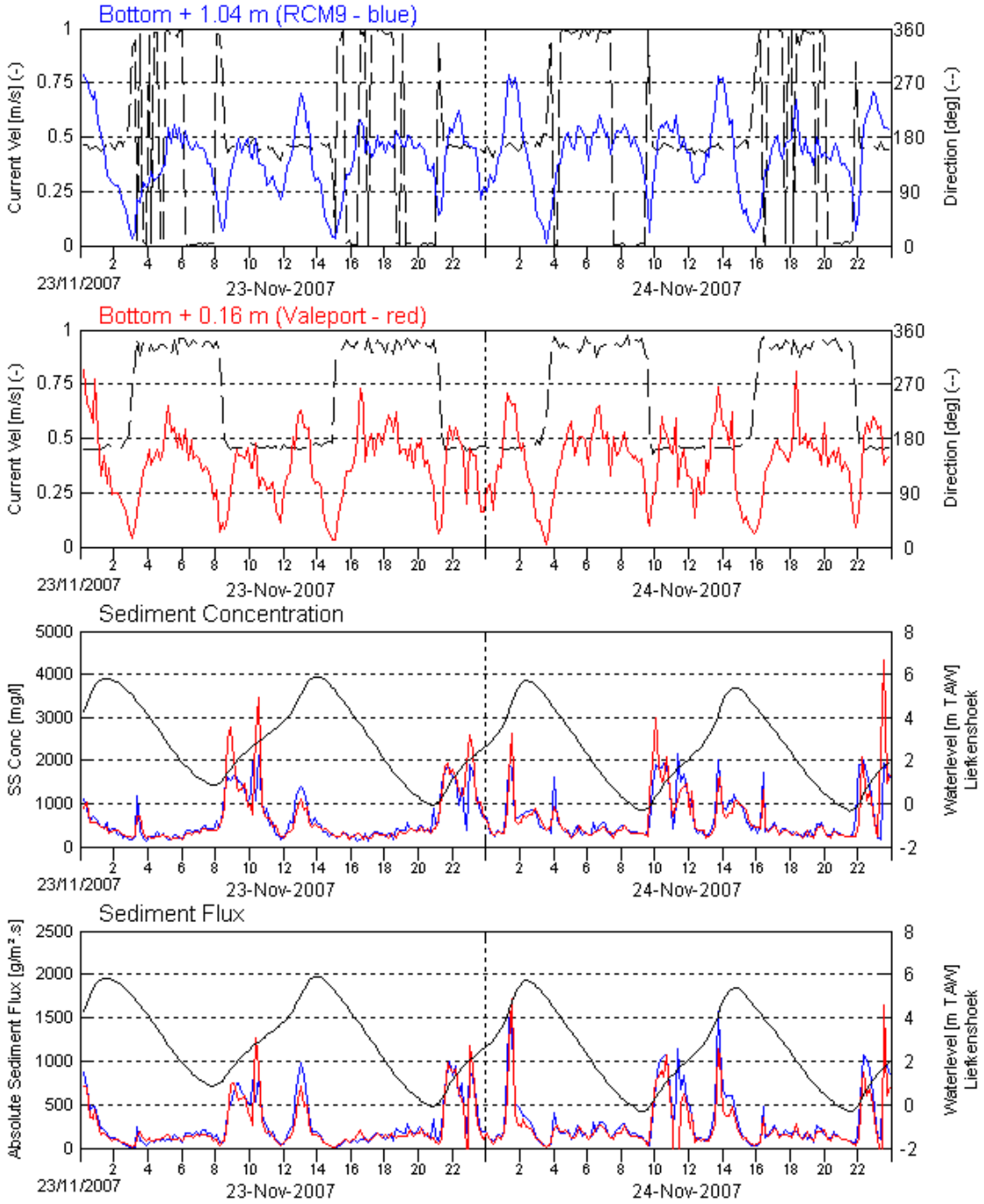
Date:
21/11/2007– 22/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

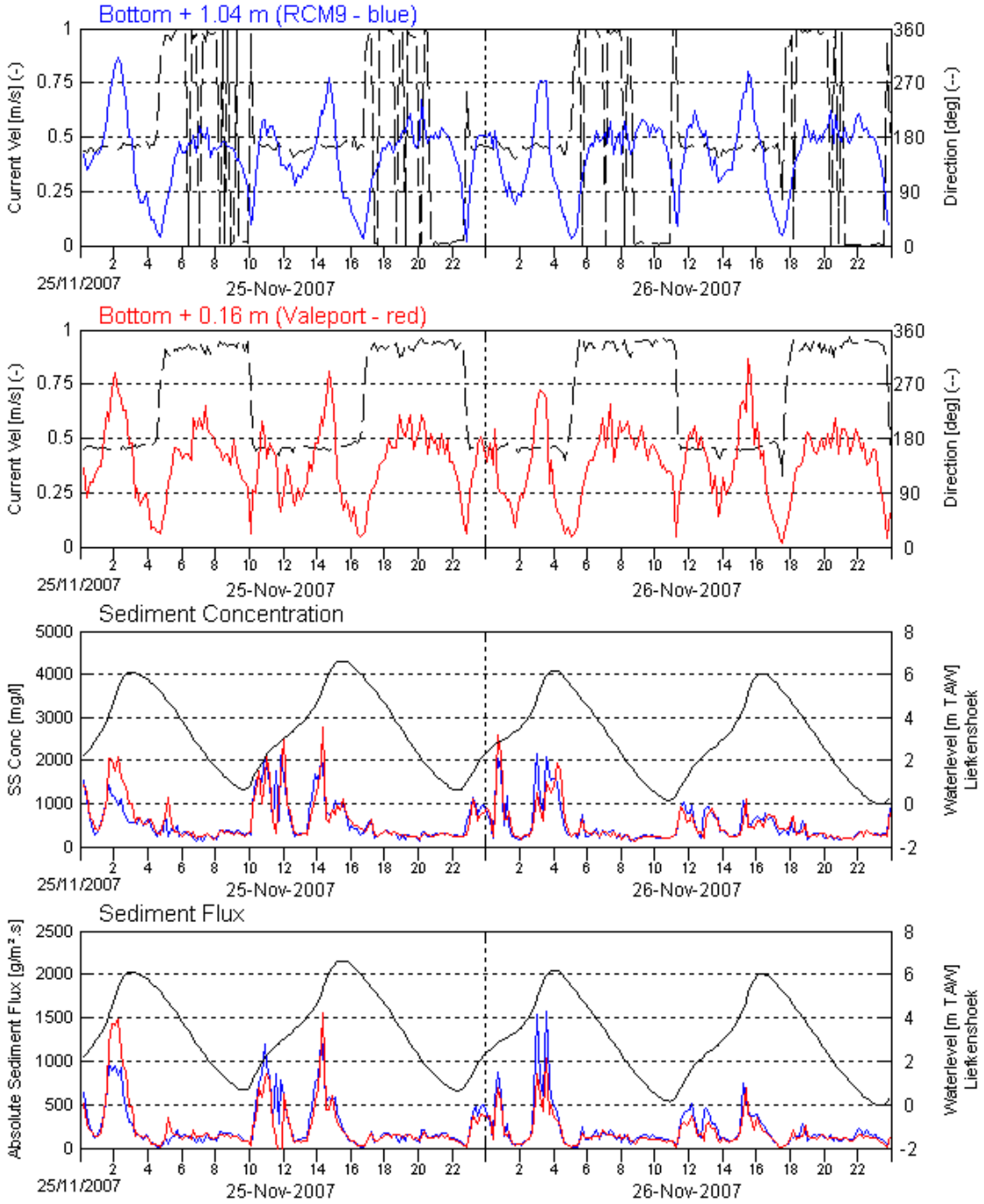
Date: 23/11/2007– 24/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok
CDW

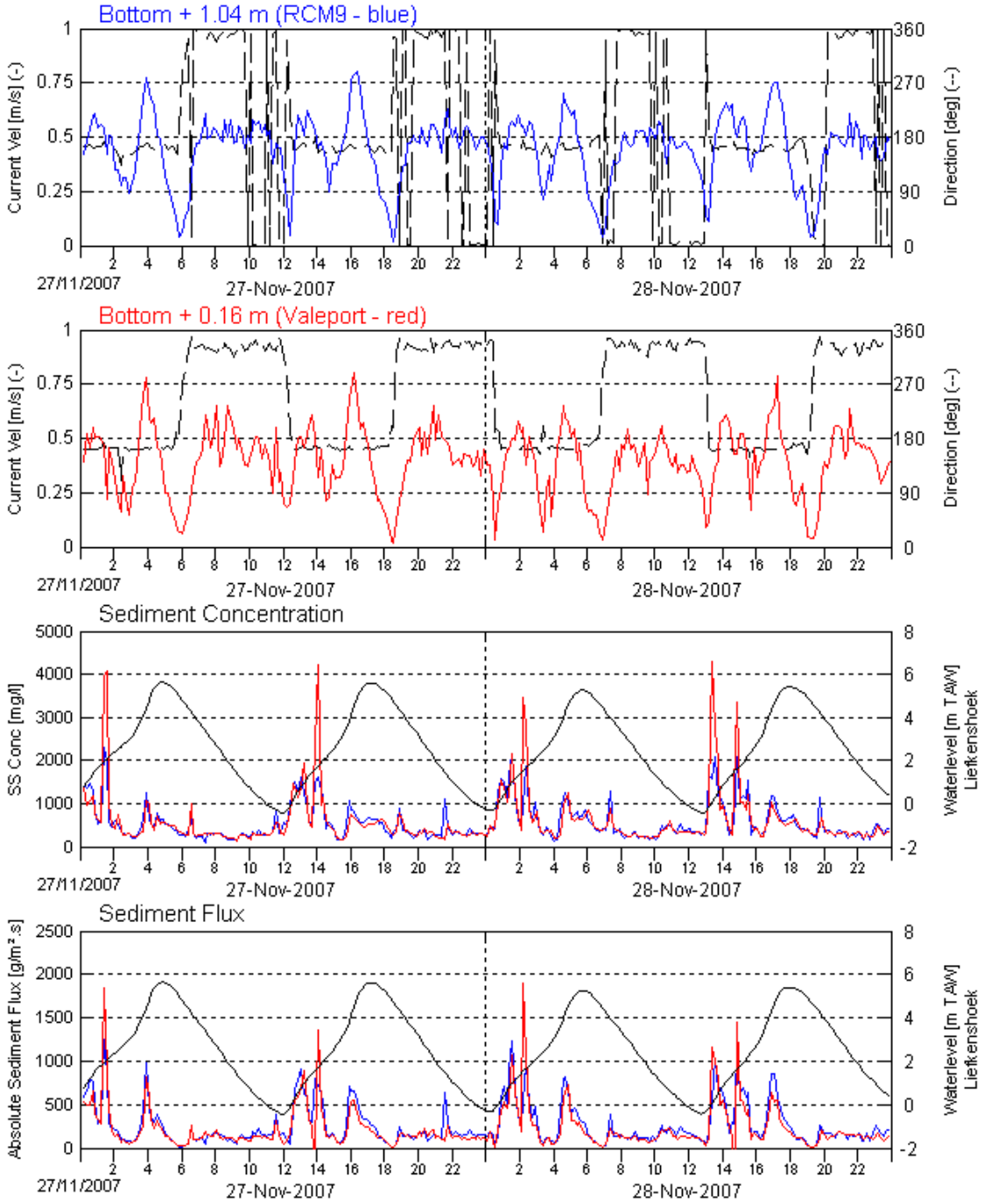
Date:
25/11/2007– 26/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

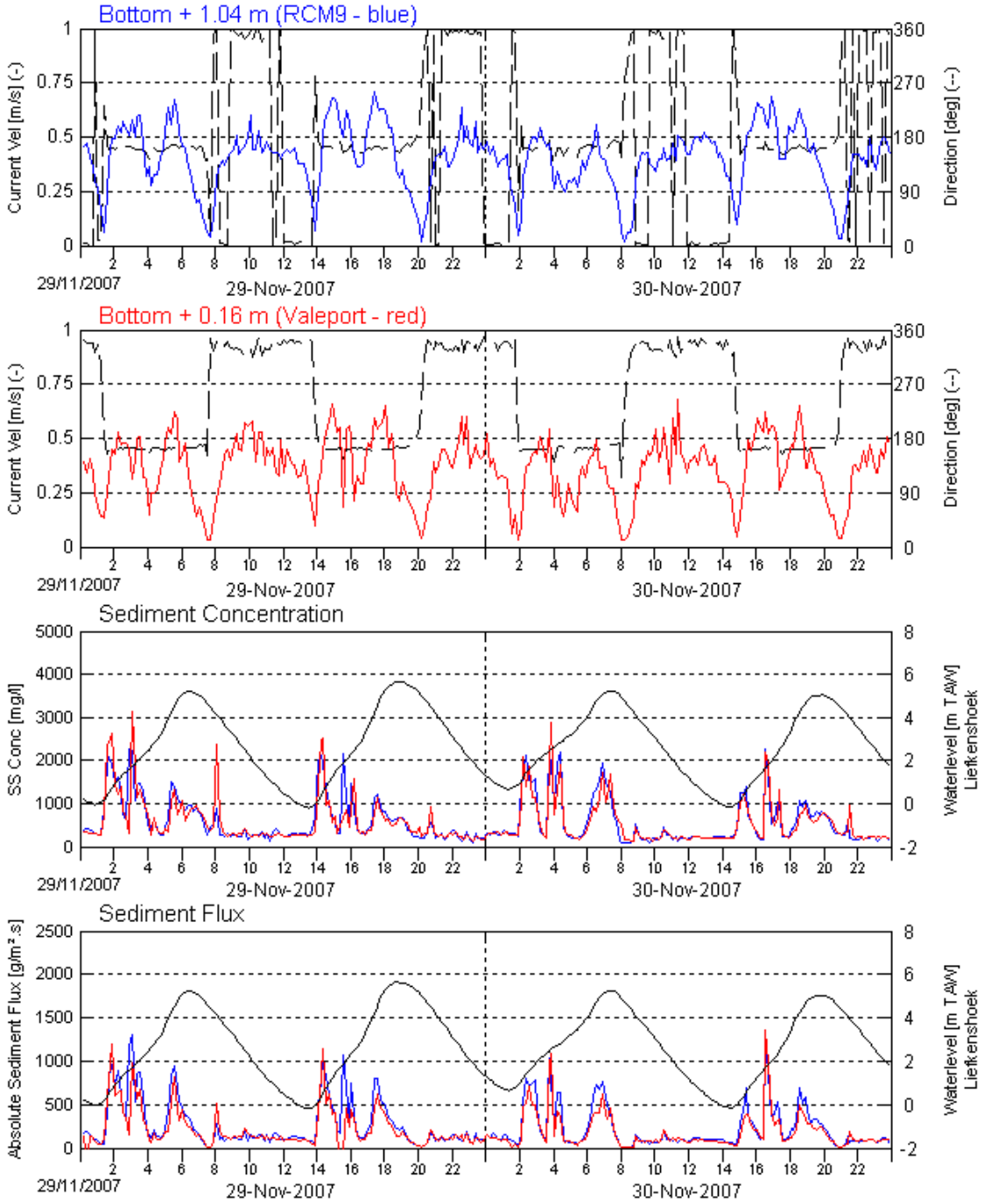
Date: 27/11/2007– 28/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

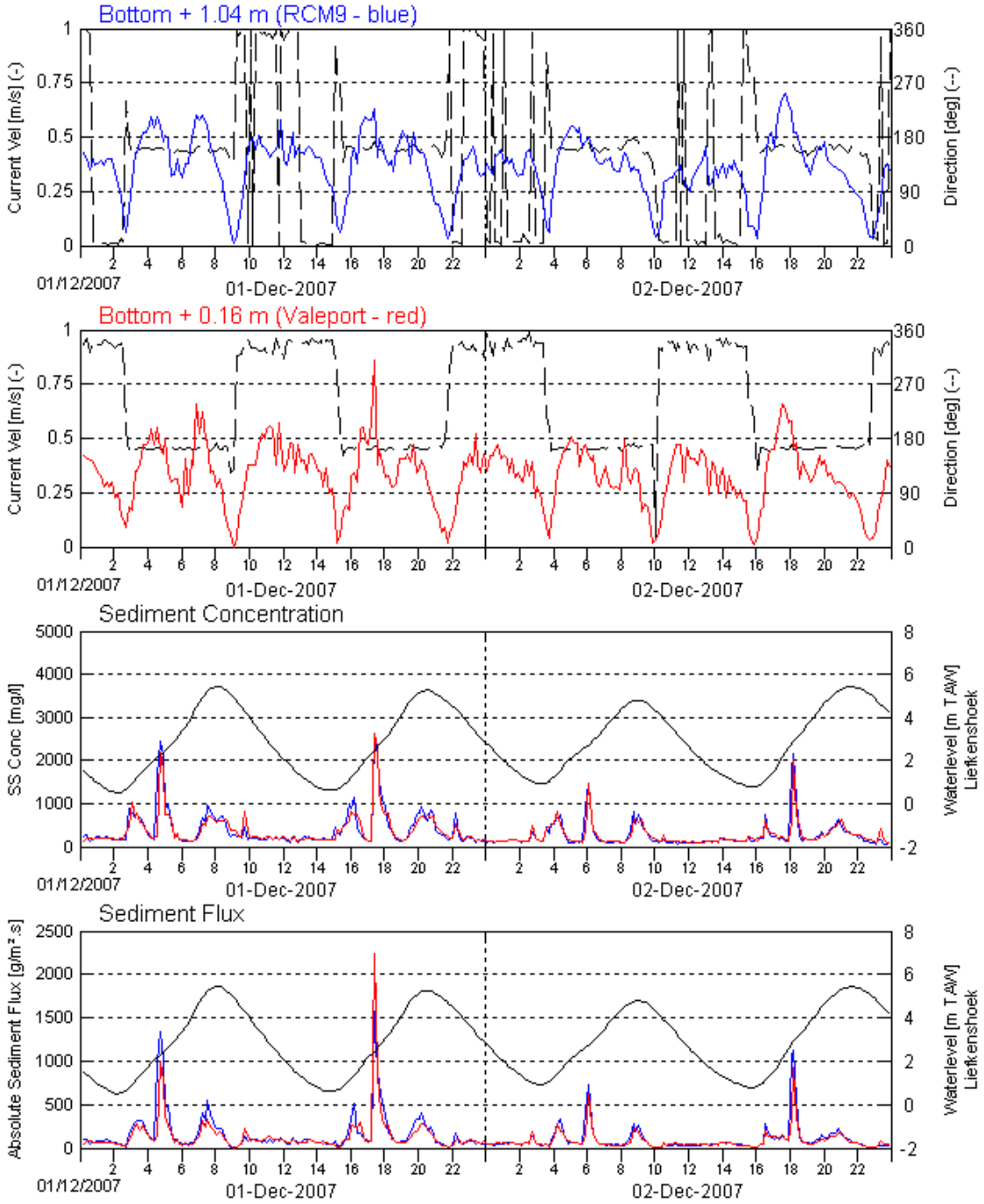
Date: 29/11/2007– 30/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

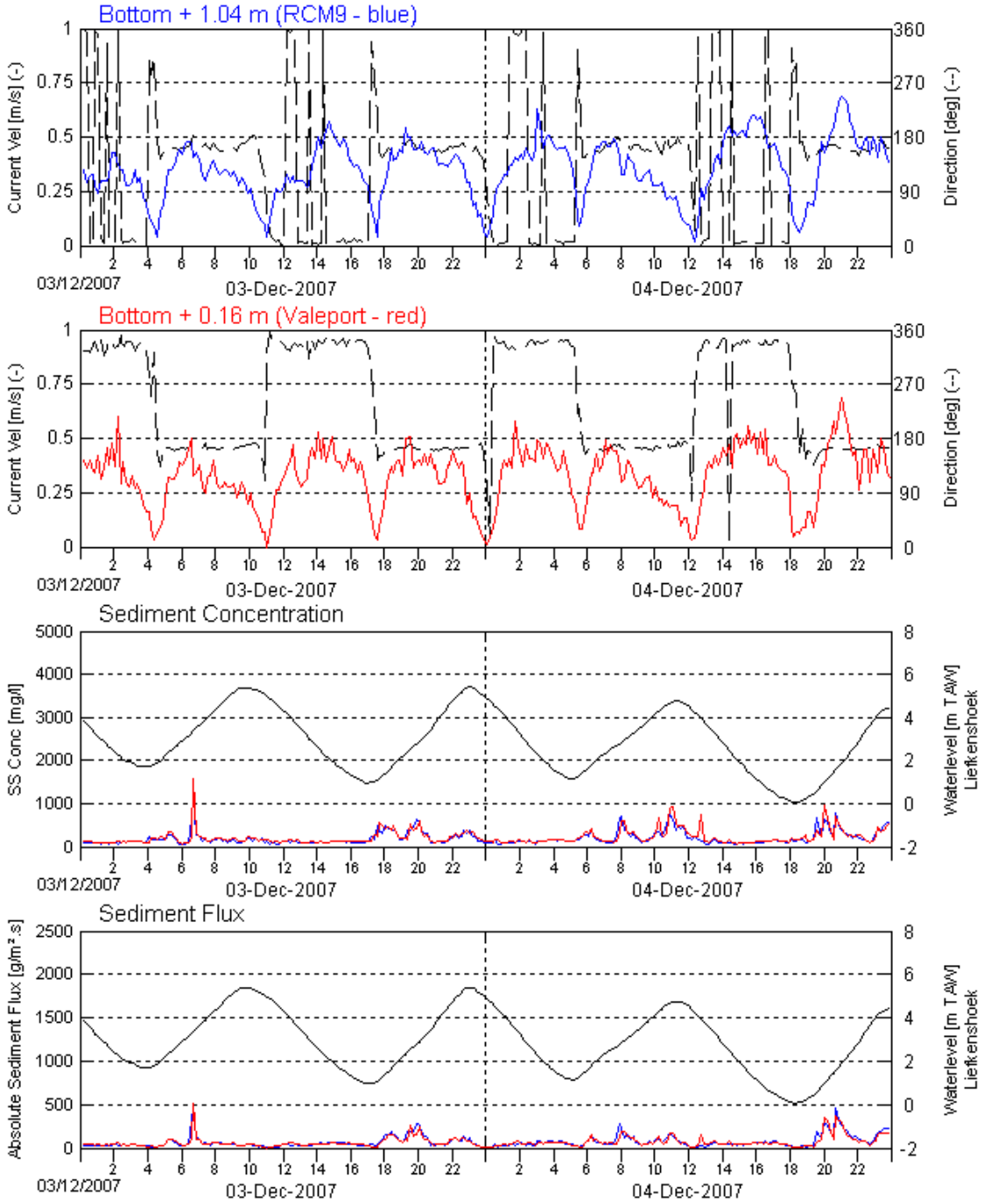
Date: 01/12/2007– 02/12/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

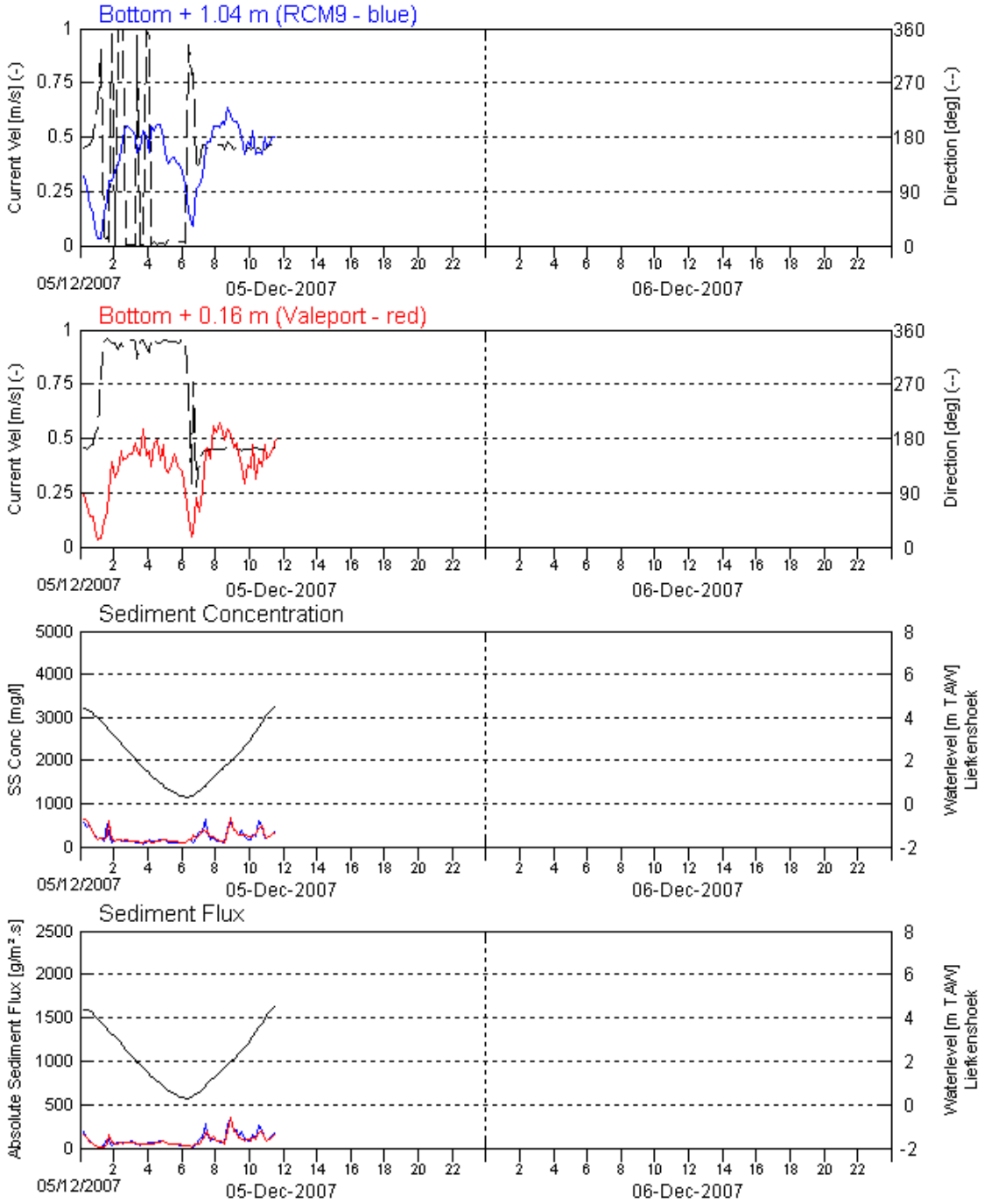
*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




| | | |
|---|---|---|
| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | *Data processed by:* IMDC |
| Location: Deurganckdok CDW | Date: 03/12/2007– 04/12/2007 | *In association with:* WL \| delft hydraulics, GEMS International |
| | | *I/RA/11283/07.093/MSA* |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok CDW

Date: 05/12/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20070926 | 1 | flood | 1 | 0.4 | 155.4 | 0.5 | 217.1 | 175.7 | 191 | 67.2 | 93.1 |
| 20070926 | 1 | ebb | 5.9 | 0.5 | 192.2 | 0.4 | 131.3 | 62.9 | 91.1 | 26.9 | 34 |
| 20070927 | 2 | flood | 6.1 | 0.4 | 141.3 | 0.5 | 208.4 | 117.3 | 146.8 | 46.7 | 77.6 |
| 20070927 | 2 | ebb | 6 | 0.5 | 202.1 | 0.4 | 136.3 | 93.8 | 126.7 | 34.6 | 46.8 |
| 20070927 | 3 | flood | 5.7 | 0.3 | 140.6 | 0.5 | 204.2 | 163.6 | 209.3 | 61.1 | 107.1 |
| 20070927 | 3 | ebb | 6.1 | 0.5 | 209.1 | 0.4 | 131.8 | 77.2 | 106.1 | 29.7 | 39.5 |
| 20070928 | 4 | flood | 6.5 | 0.4 | 138.6 | 0.5 | 207.7 | 116.4 | 150.7 | 49.9 | 85 |
| 20070928 | 4 | ebb | 6 | 0.4 | 180.3 | 0.4 | 137.5 | 107.9 | 149.3 | 42.1 | 58.8 |
| 20070928 | 5 | flood | 5.9 | 0.3 | 153.4 | 0.5 | 206.5 | 208.4 | 238.8 | 81.1 | 125.1 |
| 20070928 | 5 | ebb | 6.5 | 0.5 | 186.1 | 0.4 | 133.2 | 104.3 | 133.7 | 39.1 | 51.4 |
| 20070929 | 6 | flood | 6.6 | 0.4 | 139.9 | 0.5 | 208.8 | 162.3 | 205 | 78.5 | 117.8 |
| 20070929 | 6 | ebb | 6.2 | 0.5 | 180 | 0.4 | 137.9 | 136.9 | 172.3 | 53.4 | 65.9 |
| 20070929 | 7 | flood | 6.2 | 0.4 | 147 | 0.5 | 209.4 | 185.6 | 224.8 | 76.1 | 121.2 |
| 20070930 | 7 | ebb | 6.4 | 0.5 | 187.6 | 0.4 | 135.3 | 111.6 | 138.3 | 45.1 | 54.2 |
| 20070930 | 8 | flood | 6.3 | 0.4 | 141.7 | 0.5 | 208.7 | 148.3 | 191.9 | 66.6 | 105.4 |
| 20070930 | 8 | ebb | 6.1 | 0.5 | 189.4 | 0.4 | 137.1 | 114.5 | 147.1 | 44.1 | 57.6 |
| 20070930 | 9 | flood | 5.9 | 0.4 | 142 | 0.5 | 206.3 | 140.2 | 178.4 | 57.1 | 91.4 |
| 20071001 | 9 | ebb | 6.3 | 0.5 | 190.1 | 0.4 | 132.4 | 95 | 128.1 | 35.6 | 49.4 |
| 20071001 | 10 | flood | 5.9 | 0.4 | 146.2 | 0.5 | 206.7 | 102.4 | 140.8 | 42.6 | 72.1 |
| 20071001 | 10 | ebb | 5.8 | 0.4 | 186.3 | 0.4 | 137.7 | 123.3 | 164.4 | 41.8 | 60.7 |
| 20071001 | 11 | flood | 5.9 | 0.4 | 141.4 | 0.5 | 204.6 | 145.3 | 181.3 | 56.7 | 90 |
| 20071002 | 11 | ebb | 5.8 | 0.5 | 221.3 | 0.4 | 134.1 | 93.6 | 132.2 | 34.2 | 48.3 |
| 20071002 | 12 | flood | 5.5 | 0.3 | 151.1 | 0.5 | 204.7 | 90.3 | 133.2 | 31 | 60.6 |
| 20071002 | 12 | ebb | 5.3 | 0.4 | 206.8 | 0.4 | 133.6 | 81.1 | 114.5 | 31.1 | 41.5 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071002 | 13 | flood | 5.3 | 0.3 | 149.9 | 0.5 | 208.8 | 118.8 | 158.7 | 40.8 | 74.1 |
| 20071003 | 13 | ebb | 5.3 | 0.4 | 149.1 | 0.4 | 134.8 | 85.2 | 120.6 | 30.5 | 44.5 |
| 20071003 | 14 | flood | 4.9 | 0.3 | 138.9 | 0.4 | 204 | 120.9 | 155.6 | 37.8 | 68.8 |
| 20071003 | 14 | ebb | 4.8 | 0.4 | 178.9 | 0.4 | 130.2 | 87.5 | 124.6 | 30.7 | 45.2 |
| 20071003 | 15 | flood | 4.9 | 0.3 | 140.4 | 0.4 | 205.2 | 131.5 | 174.4 | 40.7 | 75.4 |
| 20071004 | 15 | ebb | 4.7 | 0.4 | 153.4 | 0.4 | 135.8 | 97.8 | 141.9 | 31.9 | 51.5 |
| 20071004 | 16 | flood | 4.2 | 0.3 | 144.1 | 0.4 | 200.7 | 93.2 | 122 | 27.1 | 51.9 |
| 20071004 | 16 | ebb | 4.1 | 0.4 | 171.3 | 0.4 | 137.5 | 70.3 | 97.3 | 22 | 34 |
| 20071004 | 17 | flood | 4.4 | 0.3 | 146.5 | 0.4 | 202.5 | 102.4 | 146.2 | 26.9 | 58.5 |
| 20071005 | 17 | ebb | 4.1 | 0.4 | 141.1 | 0.4 | 138.2 | 62.7 | 90.9 | 19.4 | 31.6 |
| 20071005 | 18 | flood | 3.5 | 0.2 | 159.8 | 0.4 | 201.5 | 84.3 | 114.5 | 18 | 43.7 |
| 20071005 | 18 | ebb | 3.9 | 0.4 | 157 | 0.4 | 137.6 | 44.3 | 63.6 | 15 | 22.3 |
| 20071005 | 19 | flood | 4.3 | 0.2 | 154.9 | 0.4 | 203.9 | 91.9 | 132.5 | 22.8 | 52 |
| 20071006 | 19 | ebb | 4.1 | 0.4 | 144.1 | 0.3 | 137.7 | 51.9 | 75.1 | 16.9 | 25 |
| 20071006 | 20 | flood | 3.8 | 0.3 | 153.6 | 0.4 | 203.2 | 77.6 | 115.1 | 20.4 | 45.9 |
| 20071006 | 20 | ebb | 4.2 | 0.4 | 161.5 | 0.4 | 136.2 | 41.3 | 61.5 | 15.7 | 21.6 |
| 20071007 | 21 | flood | 4.7 | 0.3 | 143.5 | 0.4 | 206.3 | 78.1 | 117.8 | 21.2 | 48.6 |
| 20071007 | 21 | ebb | 4.4 | 0.4 | 137.2 | 0.4 | 138.5 | 53 | 76.3 | 19.1 | 26.5 |
| 20071007 | 22 | flood | 4.4 | 0.3 | 128.6 | 0.4 | 204.9 | 79 | 114.8 | 21.5 | 47.5 |
| 20071007 | 22 | ebb | 4.7 | 0.4 | 157.4 | 0.4 | 134.3 | 55.1 | 81.7 | 19.3 | 28.6 |
| 20071008 | 23 | flood | 5.2 | 0.3 | 135.5 | 0.5 | 208.9 | 79.3 | 103.4 | 25.2 | 46.9 |
| 20071008 | 23 | ebb | 4.9 | 0.4 | 130.5 | 0.4 | 138.2 | 53.6 | 77.9 | 20.4 | 28.1 |
| 20071008 | 24 | flood | 4.7 | 0.3 | 140 | 0.4 | 209.2 | 76.5 | 118.7 | 22.1 | 51 |
| 20071008 | 24 | ebb | 5.2 | 0.4 | 191.2 | 0.4 | 131.4 | 64 | 93.4 | 23.9 | 32.8 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071009 | 25 | flood | 5.4 | 0.3 | 138.1 | 0.5 | 211.7 | 66.5 | 97 | 23 | 47.3 |
| 20071009 | 25 | ebb | 5.1 | 0.4 | 162.8 | 0.4 | 140 | 62.1 | 88.3 | 22.5 | 30.3 |
| 20071009 | 26 | flood | 5 | 0.3 | 135.8 | 0.5 | 209.7 | 72.7 | 110.4 | 22.8 | 50.3 |
| 20071009 | 26 | ebb | 5.3 | 0.4 | 162.3 | 0.4 | 136.6 | 61.6 | 88.1 | 22.4 | 30.5 |
| 20071010 | 27 | flood | 5.7 | 0.4 | 142.3 | 0.5 | 210.4 | 87.1 | 117.3 | 31.5 | 59.8 |
| 20071010 | 27 | ebb | 5.3 | 0.4 | 218.2 | 0.4 | 136.6 | 73.3 | 106.5 | 26.1 | 37.5 |
| 20071010 | 28 | flood | 5.2 | 0.3 | 130.7 | 0.4 | 205.2 | 95.7 | 132.3 | 30.4 | 55.9 |
| 20071010 | 28 | ebb | 5.6 | 0.5 | 202.4 | 0.4 | 131.6 | 61.2 | 87.4 | 25.9 | 30.8 |
| 20071011 | 29 | flood | 5.7 | 0.3 | 134.7 | 0.5 | 210.5 | 97.7 | 130 | 34.3 | 66 |
| 20071011 | 29 | ebb | 5.5 | 0.5 | 211.8 | 0.4 | 132.9 | 82 | 119 | 31.3 | 42.7 |
| 20071011 | 30 | flood | 5.4 | 0.3 | 140.1 | 0.5 | 207.6 | 109.7 | 147.4 | 38.2 | 68.3 |
| 20071011 | 30 | ebb | 5.4 | 0.4 | 230.8 | 0.4 | 134.1 | 80.2 | 114.5 | 30.6 | 40.3 |
| 20071012 | 31 | flood | 5.8 | 0.4 | 140.6 | 0.4 | 197 | 114.8 | 177.9 | 42.2 | 77 |
| 20071012 | 31 | ebb | 5.4 | 0.4 | 212.7 | - | - | 94.5 | - | 33.8 | - |
| 20071012 | 32 | flood | 5.3 | 0.3 | 132.4 | - | - | 122.8 | - | 41 | - |
| 20071012 | 32 | ebb | 5.8 | 0.5 | 168.6 | - | - | 72.7 | - | 30.3 | - |
| 20071013 | 33 | flood | 5.6 | 0.4 | 136 | - | - | 95.5 | - | 34.8 | - |
| 20071013 | 33 | ebb | 5.6 | 0.4 | 176.9 | - | - | 86.9 | - | 30.8 | - |
| 20071013 | 34 | flood | 5.5 | 0.3 | 146.3 | - | - | 105.2 | - | 36.1 | - |
| 20071013 | 34 | ebb | 5.6 | 0.4 | 203.7 | - | - | 74.4 | - | 27 | - |
| 20071014 | 35 | flood | 5.5 | 0.3 | 138.2 | - | - | 90.1 | - | 31.4 | - |
| 20071014 | 35 | ebb | 5.3 | 0.4 | 206.9 | - | - | 76.3 | - | 27.8 | - |
| 20071014 | 36 | flood | 5.5 | 0.3 | 135.4 | - | - | 96.9 | - | 33.6 | - |
| 20071014 | 36 | ebb | 5.4 | 0.4 | 188.1 | - | - | 70.8 | - | 25.4 | - |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071015 | 37 | flood | 5.4 | 0.4 | 134.4 | - | - | 76.5 | - | 27.7 | - |
| 20071015 | 37 | ebb | 5.2 | 0.4 | 225.2 | - | - | 76.3 | - | 27.7 | - |
| 20071015 | 38 | flood | 5.3 | 0.3 | 135.5 | - | - | 101.2 | - | 34.9 | - |
| 20071016 | 38 | ebb | 5.3 | 0.4 | 207.3 | - | - | 69.3 | - | 24.5 | - |
| 20071016 | 39 | flood | 5.1 | 0.4 | 139.1 | - | - | 77 | - | 29.5 | - |
| 20071016 | 39 | ebb | 4.9 | 0.4 | 211.7 | - | - | 59.5 | - | 21.1 | - |
| 20071016 | 40 | flood | 5 | 0.4 | 140.2 | - | - | 78.5 | - | 27.8 | - |
| 20071017 | 40 | ebb | 5 | 0.4 | 215.7 | - | - | 65.8 | - | 24.1 | - |
| 20071017 | 41 | flood | 5 | 0.3 | 144.8 | - | - | 83.9 | - | 28.9 | - |
| 20071017 | 41 | ebb | 4.3 | 0.4 | 228.9 | 0.1 | 318.8 | 74.2 | 168.6 | 23.3 | 11.8 |
| 20071017 | 42 | flood | 4.2 | 0.4 | 162.2 | 0.3 | 22.3 | 103.4 | 142.4 | 36.7 | 41.5 |
| 20071018 | 42 | ebb | 4.5 | 0.4 | 304 | 0.4 | 186.7 | 66.1 | 93.8 | 22.2 | 31.1 |
| 20071018 | 43 | flood | 4.2 | 0.3 | 160.9 | 0.3 | 50.5 | 70.5 | 100.2 | 21.9 | 25.8 |
| 20071018 | 43 | ebb | 4.5 | 0.4 | 304.8 | 0.4 | 182 | 55.1 | 82.1 | 20 | 28.2 |
| 20071018 | 44 | flood | 4.3 | 0.3 | 147.1 | 0.3 | 51.8 | 75 | 108.3 | 23.8 | 28.9 |
| 20071019 | 44 | ebb | 4.4 | 0.4 | 302.8 | 0.4 | 184.3 | 51.4 | 76.7 | 17.4 | 26.5 |
| 20071019 | 45 | flood | 4 | 0.3 | 163.3 | 0.3 | 54.6 | 71.7 | 100.8 | 22.4 | 26.1 |
| 20071019 | 45 | ebb | 4.1 | 0.4 | 280.2 | 0.3 | 187.8 | 49.2 | 74.6 | 16.4 | 22.6 |
| 20071019 | 46 | flood | 4.1 | 0.3 | 166.3 | 0.3 | 48.2 | 78 | 115 | 23.5 | 28.8 |
| 20071020 | 46 | ebb | 3.9 | 0.3 | 292.5 | 0.3 | 182.6 | 45.1 | 70.8 | 14.3 | 21.9 |
| 20071020 | 47 | flood | 3.5 | 0.3 | 155.7 | 0.2 | 51.2 | 61.6 | 97.1 | 16.8 | 21 |
| 20071020 | 47 | ebb | 3.6 | 0.3 | 307.9 | 0.3 | 171.4 | 40.3 | 61.4 | 12.4 | 17.4 |
| 20071020 | 48 | flood | 3.8 | 0.3 | 156.7 | 0.3 | 49.5 | 61.4 | 94.2 | 18.8 | 24.2 |
| 20071021 | 48 | ebb | 3.6 | 0.3 | 314.9 | 0.3 | 185.7 | 38.5 | 58.7 | 11.4 | 16.5 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071021 | 49 | flood | 3.4 | 0.3 | 174.2 | 0.2 | 47.7 | 54.7 | 88.6 | 15.5 | 19.7 |
| 20071021 | 49 | ebb | 3.6 | 0.3 | 314.3 | 0.3 | 188.8 | 33.2 | 72.4 | 10.8 | 25.3 |
| 20071021 | 50 | flood | 4.1 | 0.3 | 179.1 | 0.3 | 34.8 | 50.9 | 82.2 | 15.4 | 22.4 |
| 20071022 | 50 | ebb | 4.2 | 0.4 | 301.9 | 0.4 | 176.1 | 34.6 | 54.1 | 12 | 18 |
| 20071022 | 51 | flood | 3.9 | 0.3 | 165.1 | 0.3 | 41.8 | 48.1 | 78 | 15.4 | 20.2 |
| 20071022 | 51 | ebb | 4.3 | 0.4 | 306.6 | 0.4 | 183.9 | 42 | 68.9 | 14.7 | 23.2 |
| 20071023 | 52 | flood | 4.9 | 0.4 | 168.9 | 0.3 | 38 | 67 | 112 | 21.4 | 30.2 |
| 20071023 | 52 | ebb | 4.7 | 0.4 | 312.8 | 0.4 | 147.3 | 42.5 | 70 | 14.8 | 23.3 |
| 20071023 | 53 | flood | 4.5 | 0.3 | 173.5 | 0.3 | 37 | 65.8 | 111.9 | 22.6 | 31.9 |
| 20071023 | 53 | ebb | 5 | 0.4 | 311 | 0.4 | 212.6 | 46.2 | 77.9 | 16.5 | 26.3 |
| 20071024 | 54 | flood | 5.3 | 0.4 | 180.6 | 0.3 | 50.9 | 75.4 | 120.8 | 28.6 | 39.8 |
| 20071024 | 54 | ebb | 5.1 | 0.4 | 315.1 | 0.4 | 208.2 | 55.5 | 118.1 | 20.6 | 45.9 |
| 20071024 | 55 | flood | 5.1 | 0.3 | 173.9 | 0.3 | 92.9 | 94.1 | 142 | 33.8 | 40.1 |
| 20071024 | 55 | ebb | 5.5 | 0.4 | 315 | 0.4 | 207.3 | 59.6 | 98.2 | 23.1 | 36.8 |
| 20071025 | 56 | flood | 5.8 | 0.4 | 162.8 | 0.4 | 88.1 | 110 | 162.7 | 46.7 | 59.4 |
| 20071025 | 56 | ebb | 5.5 | 0.4 | 310.1 | 0.4 | 174.2 | 80.1 | 126.1 | 29.7 | 45.6 |
| 20071025 | 57 | flood | 5.5 | 0.4 | 167.8 | 0.3 | 158.2 | 130 | 185.4 | 50 | 59.8 |
| 20071025 | 57 | ebb | 5.8 | 0.4 | 319.7 | 0.4 | 183 | 61.6 | 98.9 | 25.1 | 38.6 |
| 20071026 | 58 | flood | 6.2 | 0.4 | 180.7 | 0.4 | 83.9 | 149.3 | 210.1 | 64.5 | 78.4 |
| 20071026 | 58 | ebb | 5.9 | 0.4 | 307.1 | 0.4 | 170.4 | 89.4 | 135.7 | 33.6 | 48.8 |
| 20071026 | 59 | flood | 5.8 | 0.4 | 178.8 | 0.3 | 62.4 | 169.4 | 232.9 | 67.3 | 79.5 |
| 20071026 | 59 | ebb | 6.1 | 0.4 | 319.4 | 0.4 | 183.6 | 81 | 124.2 | 31.5 | 47.1 |
| 20071027 | 60 | flood | 6.4 | 0.5 | 180.3 | 0.4 | 72.1 | 147.5 | 203.3 | 72 | 89.2 |
| 20071027 | 60 | ebb | 5.9 | 0.4 | 311.2 | 0.4 | 183.4 | 114.1 | 166.2 | 42.5 | 59.4 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071027 | 61 | flood | 5.9 | 0.4 | 168.3 | 0.3 | 57 | 186.5 | 254.2 | 78.6 | 92.4 |
| 20071027 | 61 | ebb | 6.3 | 0.4 | 317.6 | 0.4 | 185.6 | 103.6 | 145.5 | 37.9 | 53 |
| 20071028 | 62 | flood | 6.1 | 0.5 | 174.9 | 0.4 | 47.1 | 153.5 | 206.7 | 74.3 | 86.8 |
| 20071028 | 62 | ebb | 6.1 | 0.4 | 315.7 | 0.4 | 179.6 | 114.7 | 162.8 | 41.5 | 54.7 |
| 20071028 | 63 | flood | 6 | 0.4 | 174.8 | 0.4 | 37.9 | 164.3 | 225.4 | 75.7 | 88.6 |
| 20071028 | 63 | ebb | 5.9 | 0.4 | 317 | 0.4 | 180.5 | 107.7 | 154.4 | 38 | 49.8 |
| 20071029 | 64 | flood | 6.1 | 0.4 | 169.3 | 0.4 | 39.8 | 157.5 | 214.5 | 76.2 | 85.9 |
| 20071029 | 64 | ebb | 5.8 | 0.4 | 281.1 | 0.4 | 173.1 | 107.6 | 152.5 | 42.1 | 55 |
| 20071029 | 65 | flood | 6 | 0.4 | 146.6 | 0.4 | 39.6 | 160.3 | 216.8 | 70.5 | 81.2 |
| 20071030 | 65 | ebb | 5.8 | 0.4 | 306.7 | 0.4 | 191.5 | 104.4 | 151.6 | 39.2 | 54.9 |
| 20071030 | 66 | flood | 5.6 | 0.4 | 158.1 | 0.3 | 35.3 | 144.9 | 201.5 | 58 | 70.2 |
| 20071030 | 66 | ebb | 5.5 | 0.4 | 315.2 | 0.4 | 187.7 | 91.7 | 136.3 | 34.4 | 48.3 |
| 20071030 | 67 | flood | 5.6 | 0.4 | 173.7 | 0.3 | 49.2 | 165.7 | 224.5 | 65.4 | 76.3 |
| 20071031 | 67 | ebb | 5.7 | 0.4 | 314.1 | 0.4 | 186.8 | 94.3 | 138.6 | 35.6 | 50.7 |
| 20071031 | 68 | flood | 5.1 | 0.4 | 168.5 | 0.3 | 46.9 | 135.3 | 193.3 | 49.8 | 62.8 |
| 20071031 | 68 | ebb | 5.3 | 0.4 | 286.3 | 0.4 | 183.9 | 97 | 137.6 | 35.8 | 48.6 |
| 20071031 | 69 | flood | 5.5 | 0.4 | 165.5 | 0.3 | 37.1 | 139.9 | 193.5 | 57.2 | 64.6 |
| 20071101 | 69 | ebb | 4.9 | 0.4 | 314.2 | 0.4 | 183.8 | 104.1 | 153.4 | 34.8 | 49.4 |
| 20071101 | 70 | flood | 4.6 | 0.3 | 179.1 | 0.3 | 44.5 | 143.3 | 193.3 | 48.2 | 55.9 |
| 20071101 | 70 | ebb | 4.8 | 0.4 | 306.4 | 0.4 | 187.9 | 86 | 126.7 | 28.5 | 40.6 |
| 20071101 | 71 | flood | 5 | 0.4 | 176.4 | 0.3 | 48.4 | 136 | 190.1 | 47.9 | 54.5 |
| 20071102 | 71 | ebb | 4.6 | 0.4 | 305.3 | 0.4 | 195.1 | 78.9 | 118.2 | 26.3 | 39.6 |
| 20071102 | 72 | flood | 4.1 | 0.3 | 175.8 | 0.3 | 31 | 120.6 | 164.4 | 39 | 44.9 |
| 20071102 | 72 | ebb | 4.4 | 0.4 | 317.1 | 0.4 | 207.4 | 65.6 | 97.7 | 21.8 | 32.4 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071102 | 73 | flood | 4.6 | 0.3 | 173 | 0.3 | 31 | 122.1 | 173.8 | 41.3 | 47.5 |
| 20071103 | 73 | ebb | 4.1 | 0.4 | 314.6 | 0.3 | 179.9 | 65.5 | 97.5 | 20.5 | 28.6 |
| 20071103 | 74 | flood | 3.8 | 0.3 | 180.9 | 0.2 | 57.2 | 84.3 | 126.5 | 24.4 | 31.1 |
| 20071103 | 74 | ebb | 4 | 0.3 | 312 | 0.3 | 185.6 | 48.7 | 76.4 | 15.8 | 23.7 |
| 20071103 | 75 | flood | 4.4 | 0.3 | 180 | 0.3 | 41.3 | 70.1 | 102.5 | 22.6 | 27.8 |
| 20071104 | 75 | ebb | 4.3 | 0.4 | 305.3 | 0.3 | 191.3 | 56.5 | 85.7 | 17.4 | 25.3 |
| 20071104 | 76 | flood | 3.7 | 0.3 | 175.5 | 0.2 | 46.5 | 68 | 101.8 | 19.2 | 23.4 |
| 20071104 | 76 | ebb | 4.2 | 0.4 | 320.9 | 0.4 | 189.7 | 44.4 | 64.3 | 15.5 | 21.7 |
| 20071105 | 77 | flood | 4.7 | 0.3 | 175.5 | 0.3 | 40.8 | 67.9 | 107 | 22.9 | 29.8 |
| 20071105 | 77 | ebb | 4.4 | 0.4 | 312.1 | 0.4 | 196.1 | 49.1 | 77.2 | 16 | 24.8 |
| 20071105 | 78 | flood | 4.2 | 0.3 | 170.5 | 0.3 | 43 | 60.7 | 90 | 20 | 25 |
| 20071105 | 78 | ebb | 4.5 | 0.4 | 311.5 | 0.4 | 204.1 | 64.3 | 98 | 22.3 | 32.2 |
| 20071106 | 79 | flood | 5.5 | 0.4 | 179.9 | 0.3 | 34.5 | 83.9 | 121.3 | 32.7 | 40.7 |
| 20071106 | 79 | ebb | 4.4 | 0.4 | 306.7 | 0.4 | 173.1 | 61.9 | 94.8 | 22.6 | 32.5 |
| 20071106 | 80 | flood | 4.5 | 0.3 | 187.6 | 0.3 | 42.4 | 101.4 | 141.8 | 31.2 | 36.3 |
| 20071106 | 80 | ebb | 5.2 | 0.4 | 326 | 0.4 | 191.1 | 65.9 | 98.3 | 27 | 39.2 |
| 20071107 | 81 | flood | 4.6 | 0.4 | 159.4 | 0.3 | 40.1 | 122.2 | 205 | 41 | 61.1 |
| 20071107 | 81 | ebb | 4.7 | 0.4 | 308.6 | - | - | 68.9 | - | 24.6 | - |
| 20071107 | 82 | flood | 5.3 | 0.4 | 160.6 | - | - | 110.3 | - | 42.5 | - |
| 20071107 | 82 | ebb | 5.1 | 0.4 | 314 | - | - | 75.9 | - | 28.5 | - |
| 20071108 | 83 | flood | 5 | 0.4 | 174.6 | - | - | 129.4 | - | 47.7 | - |
| 20071108 | 83 | ebb | 5.4 | 0.4 | 319.5 | - | - | 77.2 | - | 30.7 | - |
| 20071109 | 84 | flood | 6.7 | 0.3 | 161 | 0.3 | 202.6 | 149.7 | 162.5 | 49.2 | 39.3 |
| 20071109 | 84 | ebb | 4.3 | 0.2 | 160.8 | 0.3 | 249.6 | 100.7 | 131 | 17.3 | 33.1 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071109 | 85 | flood | 3.9 | 0.2 | 162.7 | 0.1 | 142.9 | 201.1 | 224.4 | 39.6 | 32 |
| 20071109 | 85 | ebb | 5.5 | 0.2 | 160.6 | 0.3 | 282.5 | 117.2 | 147 | 22.3 | 44.2 |
| 20071110 | 86 | flood | 4.7 | 0.3 | 158.7 | 0.2 | 135.4 | 348.3 | 395.8 | 76.5 | 60.8 |
| 20071110 | 86 | ebb | 5.1 | 0.2 | 187.3 | 0.3 | 271.4 | 155.4 | 189.5 | 26.4 | 46 |
| 20071110 | 87 | flood | 5.2 | 0.3 | 163.9 | 0.2 | 133.5 | 238.9 | 266.7 | 75.7 | 52.6 |
| 20071110 | 87 | ebb | 5.4 | 0.2 | 195.3 | 0.3 | 275.7 | 142 | 170 | 26.1 | 49.1 |
| 20071111 | 88 | flood | 5.4 | 0.3 | 165.9 | 0.2 | 125.8 | 260.7 | 278.1 | 88.2 | 60.1 |
| 20071111 | 88 | ebb | 4.9 | 0.2 | 219.6 | 0.2 | 264.3 | 133.3 | 167.7 | 21.9 | 38.3 |
| 20071111 | 89 | flood | 5.2 | 0.3 | 159 | 0.2 | 127.7 | 173.9 | 211.6 | 54.3 | 43.1 |
| 20071111 | 89 | ebb | 5.5 | 0.2 | 189.7 | 0.3 | 279.6 | 96.5 | 129.6 | 16.5 | 36.8 |
| 20071112 | 90 | flood | 5.2 | 0.3 | 162.4 | 0.2 | 123.3 | 163.6 | 192.3 | 51.9 | 34.9 |
| 20071112 | 90 | ebb | 5.5 | 0.2 | 154.8 | 0.3 | 279 | 87.2 | 119.2 | 15.7 | 35.8 |
| 20071112 | 91 | flood | 5.4 | 0.3 | 169.3 | 0.2 | 118.3 | 125.7 | 147.5 | 43.3 | 30.8 |
| 20071112 | 91 | ebb | 5.6 | 0.2 | 156.8 | 0.3 | 279.3 | 83.3 | 114 | 15.1 | 33.8 |
| 20071113 | 92 | flood | 5.3 | 0.3 | 165 | 0.2 | 113.8 | 118.1 | 152.2 | 39.1 | 32.6 |
| 20071113 | 92 | ebb | 5.5 | 0.2 | 186.5 | 0.3 | 276.6 | 84.6 | 113 | 15 | 29.8 |
| 20071113 | 93 | flood | 5.7 | 0.4 | 166.5 | 0.2 | 118 | 133.1 | 165 | 49.7 | 38.6 |
| 20071113 | 93 | ebb | 4.9 | 0.2 | 157.6 | 0.3 | 264.2 | 121.1 | 164.8 | 21.6 | 36.1 |
| 20071114 | 94 | flood | 4.7 | 0.3 | 177.6 | 0.2 | 128.6 | 125.3 | 145.2 | 35.5 | 26.7 |
| 20071114 | 94 | ebb | 5.4 | 0.2 | 147.5 | 0.3 | 276.8 | 83.8 | 110.9 | 15.5 | 30.2 |
| 20071114 | 95 | flood | 5 | 0.3 | 170 | 0.2 | 115.3 | 108.7 | 135.3 | 34.4 | 25.8 |
| 20071115 | 95 | ebb | 5 | 0.2 | 136.1 | 0.3 | 274.3 | 83.4 | 111.1 | 14.8 | 29.7 |
| 20071115 | 96 | flood | 4.9 | 0.3 | 168.1 | 0.2 | 113.8 | 130.7 | 150.7 | 38.9 | 25.5 |
| 20071115 | 96 | ebb | 5.1 | 0.2 | 120.4 | 0.3 | 284.3 | 79.8 | 108.1 | 13.5 | 29.2 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071115 | 97 | flood | 5.1 | 0.3 | 162.5 | 0.2 | 127.2 | 132.9 | 160.2 | 44.4 | 30.6 |
| 20071116 | 97 | ebb | 4.7 | 0.2 | 112.7 | 0.3 | 267 | 81.1 | 110.7 | 14.8 | 29.5 |
| 20071116 | 98 | flood | 4.6 | 0.3 | 171.6 | 0.2 | 121.1 | 127.7 | 154.5 | 37 | 27.2 |
| 20071116 | 98 | ebb | 4.8 | 0.2 | 119.6 | 0.3 | 277.4 | 82.7 | 110.9 | 13 | 28.2 |
| 20071116 | 99 | flood | 4.8 | 0.3 | 172 | 0.2 | 115.6 | 126 | 151.2 | 40 | 27.7 |
| 20071117 | 99 | ebb | 4.5 | 0.2 | 139.9 | 0.3 | 276.4 | 83.8 | 122.5 | 13.7 | 30.3 |
| 20071117 | 100 | flood | 4.2 | 0.3 | 171.5 | 0.2 | 122.6 | 118.3 | 147.3 | 34.2 | 24.9 |
| 20071117 | 100 | ebb | 4.4 | 0.2 | 121.5 | 0.2 | 275.7 | 72.7 | 98.1 | 12.4 | 22 |
| 20071117 | 101 | flood | 4.5 | 0.3 | 173.3 | 0.2 | 119.9 | 112.1 | 141.2 | 34.3 | 25.1 |
| 20071118 | 101 | ebb | 4.2 | 0.2 | 124 | 0.3 | 273.9 | 74.3 | 97.8 | 12.1 | 23 |
| 20071118 | 102 | flood | 3.8 | 0.3 | 170.9 | 0.2 | 119.5 | 123.3 | 147.3 | 34.5 | 24.3 |
| 20071118 | 102 | ebb | 4.2 | 0.2 | 119 | 0.3 | 278.3 | 61.5 | 86.5 | 9.5 | 19.2 |
| 20071118 | 103 | flood | 4 | 0.3 | 188.4 | 0.2 | 116.6 | 113 | 140.2 | 36.2 | 25.9 |
| 20071119 | 103 | ebb | 3.7 | 0.2 | 108.3 | 0.3 | 272.6 | 62.3 | 86.9 | 9 | 18.5 |
| 20071119 | 104 | flood | 3.9 | 0.3 | 170.3 | 0.2 | 118.7 | 79.6 | 100.3 | 24.4 | 17.8 |
| 20071119 | 104 | ebb | 4.2 | 0.2 | 118.1 | 0.2 | 274.1 | 54.2 | 75.9 | 8.7 | 16.7 |
| 20071119 | 105 | flood | 4.4 | 0.3 | 174.3 | 0.2 | 118.8 | 108.6 | 140.5 | 31.4 | 24.3 |
| 20071120 | 105 | ebb | 4.1 | 0.2 | 115.3 | 0.3 | 275.8 | 77.8 | 108.1 | 11.6 | 25.4 |
| 20071120 | 106 | flood | 4.2 | 0.3 | 178.5 | 0.2 | 131.5 | 118.9 | 152.2 | 32.6 | 27.3 |
| 20071120 | 106 | ebb | 4.7 | 0.2 | 123.8 | 0.3 | 274.5 | 87.8 | 122.6 | 15.9 | 32.5 |
| 20071120 | 107 | flood | 5 | 0.3 | 167.3 | 0.2 | 119.4 | 244 | 276.4 | 73 | 50.7 |
| 20071121 | 107 | ebb | 4.6 | 0.2 | 96.8 | 0.3 | 277.8 | 121.7 | 152 | 22.2 | 35.4 |
| 20071121 | 108 | flood | 4.5 | 0.3 | 176 | 0.2 | 117.4 | 311.5 | 341.3 | 92 | 59.3 |
| 20071121 | 108 | ebb | 4.8 | 0.4 | 213.8 | 0.4 | 317.6 | 248.6 | 238.9 | 97.7 | 87.7 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071122 | 109 | flood | 5.4 | 0.5 | 171.8 | 0.4 | 168.5 | 684.9 | 678.9 | 319.8 | 245.4 |
| 20071122 | 109 | ebb | 5.2 | 0.3 | 153.1 | 0.4 | 307.2 | 256.1 | 269.6 | 78.7 | 96.2 |
| 20071122 | 110 | flood | 5.1 | 0.5 | 164.1 | 0.4 | 173.8 | 844.5 | 885.8 | 398.5 | 353.4 |
| 20071122 | 110 | ebb | 5.4 | 0.3 | 149.6 | 0.4 | 311 | 294.9 | 300.4 | 97.1 | 102.9 |
| 20071123 | 111 | flood | 6 | 0.5 | 176.4 | 0.4 | 173.7 | 848.7 | 871 | 439.4 | 356 |
| 20071123 | 111 | ebb | 4.9 | 0.3 | 157.9 | 0.4 | 297.4 | 313.4 | 302.2 | 107.2 | 102 |
| 20071123 | 112 | flood | 5 | 0.4 | 176.7 | 0.3 | 175.8 | 971 | 978.6 | 392.1 | 338.9 |
| 20071123 | 112 | ebb | 5.9 | 0.4 | 158.9 | 0.4 | 313.6 | 327.3 | 301.9 | 126.4 | 115.8 |
| 20071124 | 113 | flood | 5.7 | 0.5 | 164.3 | 0.4 | 173.7 | 1016.7 | 1065.9 | 502.4 | 452.8 |
| 20071124 | 113 | ebb | 6 | 0.4 | 209.8 | 0.4 | 306.9 | 462.8 | 435.6 | 180.1 | 156.3 |
| 20071124 | 114 | flood | 5.7 | 0.5 | 166.6 | 0.4 | 173.6 | 1067.8 | 1028.6 | 546.6 | 382 |
| 20071124 | 114 | ebb | 5.7 | 0.4 | 205.9 | 0.4 | 308.7 | 441.4 | 433.2 | 151.4 | 139.2 |
| 20071125 | 115 | flood | 6.4 | 0.5 | 162.1 | 0.5 | 171.5 | 1012.7 | 1214.4 | 549.7 | 574.3 |
| 20071125 | 115 | ebb | 5.4 | 0.4 | 231.2 | 0.4 | 292.5 | 359.8 | 391.9 | 117.3 | 126.5 |
| 20071125 | 116 | flood | 5.9 | 0.4 | 163.3 | 0.4 | 171.5 | 1068.1 | 972.7 | 501.2 | 380.3 |
| 20071125 | 116 | ebb | 6 | 0.4 | 175.3 | 0.4 | 302.6 | 329.5 | 344.9 | 118.2 | 113 |
| 20071126 | 117 | flood | 5.5 | 0.4 | 156 | 0.4 | 175.3 | 877.1 | 769.1 | 410.3 | 298.3 |
| 20071126 | 117 | ebb | 6 | 0.4 | 180 | 0.4 | 309.8 | 322.5 | 366.4 | 120.4 | 109.6 |
| 20071126 | 118 | flood | 5.8 | 0.5 | 174.2 | 0.4 | 173.1 | 578.4 | 505.6 | 279.4 | 214.1 |
| 20071126 | 118 | ebb | 6 | 0.4 | 180.5 | 0.4 | 302.2 | 324.9 | 345.5 | 127 | 114.4 |
| 20071127 | 119 | flood | 5.7 | 0.4 | 157 | 0.4 | 176 | 728.7 | 808.3 | 350.5 | 324.2 |
| 20071127 | 119 | ebb | 6 | 0.4 | 240.3 | 0.4 | 307.1 | 308 | 320.5 | 126.1 | 114.2 |
| 20071127 | 120 | flood | 6 | 0.5 | 164 | 0.4 | 172.7 | 808.4 | 803.6 | 403.2 | 317.6 |
| 20071128 | 120 | ebb | 5.9 | 0.4 | 211.8 | 0.4 | 303.9 | 371.1 | 361.7 | 154.1 | 126.6 |

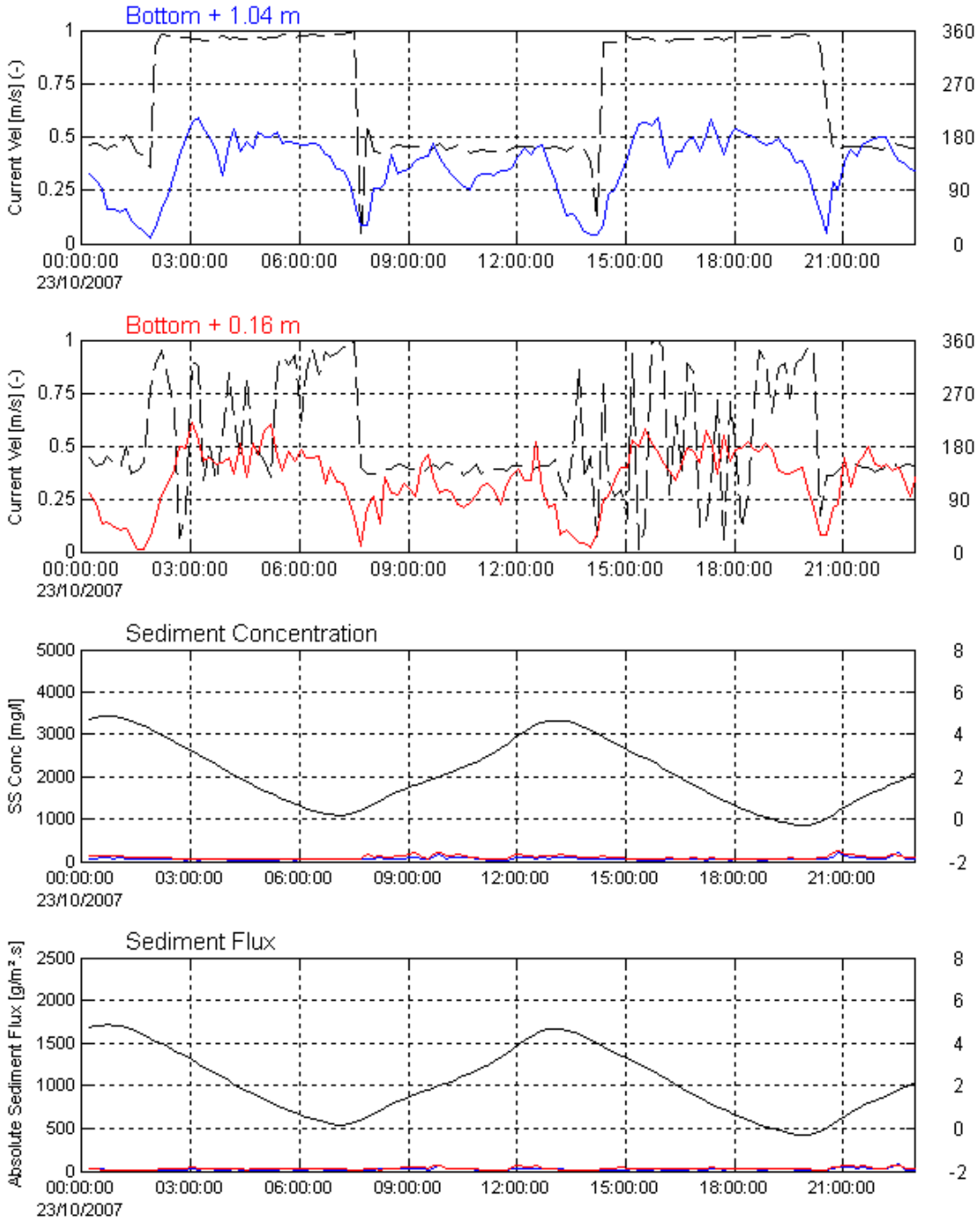
# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071128 | 121 | flood | 5.5 | 0.5 | 162.7 | 0.4 | 171.7 | 860.9 | 895.8 | 420.7 | 385.9 |
| 20071128 | 121 | ebb | 5.7 | 0.4 | 168.6 | 0.3 | 310.5 | 386.7 | 374.7 | 143.2 | 119.5 |
| 20071128 | 122 | flood | 5.8 | 0.5 | 163.4 | 0.4 | 172.4 | 868.1 | 967.4 | 449.9 | 380.8 |
| 20071129 | 122 | ebb | 5.5 | 0.4 | 199.7 | 0.4 | 302.1 | 382.7 | 353.3 | 143.2 | 108.3 |
| 20071129 | 123 | flood | 5.2 | 0.4 | 153.7 | 0.4 | 172.5 | 1057.5 | 1013.9 | 503.6 | 399.7 |
| 20071129 | 123 | ebb | 5.4 | 0.4 | 183 | 0.4 | 306.6 | 362.9 | 416.4 | 121.1 | 124.7 |
| 20071129 | 124 | flood | 5.8 | 0.5 | 159.8 | 0.4 | 169.8 | 876.4 | 785.2 | 443.3 | 303.4 |
| 20071130 | 124 | ebb | 5 | 0.4 | 200 | 0.3 | 299.5 | 302.3 | 323.6 | 108.3 | 101.6 |
| 20071130 | 125 | flood | 4.5 | 0.4 | 169.1 | 0.3 | 172 | 1002.2 | 892.2 | 384.4 | 299.1 |
| 20071130 | 125 | ebb | 5.3 | 0.4 | 147.5 | 0.3 | 313.2 | 223.3 | 254.8 | 83.7 | 82.4 |
| 20071130 | 126 | flood | 5.2 | 0.5 | 175.2 | 0.4 | 172.3 | 726.9 | 670 | 349.1 | 283.7 |
| 20071201 | 126 | ebb | 4.5 | 0.3 | 186.2 | 0.3 | 308.3 | 256.4 | 283.2 | 79.2 | 76.6 |
| 20071201 | 127 | flood | 4.9 | 0.4 | 153.2 | 0.4 | 173.7 | 591.6 | 501.5 | 276.7 | 191.8 |
| 20071201 | 127 | ebb | 4.8 | 0.4 | 200.9 | 0.4 | 306 | 234.2 | 266 | 79.7 | 81.7 |
| 20071201 | 128 | flood | 4.6 | 0.4 | 167.8 | 0.4 | 176.5 | 614.5 | 584.1 | 258.8 | 238.7 |
| 20071202 | 128 | ebb | 4.3 | 0.3 | 138.7 | 0.3 | 306.4 | 212.2 | 227.7 | 61.2 | 61.5 |
| 20071202 | 129 | flood | 3.9 | 0.4 | 164.6 | 0.3 | 170.8 | 338.7 | 322.3 | 132.1 | 108.4 |
| 20071202 | 129 | ebb | 4 | 0.3 | 93.2 | 0.3 | 301 | 141.9 | 163.5 | 39 | 39.9 |
| 20071202 | 130 | flood | 4.6 | 0.4 | 164 | 0.4 | 163.6 | 397.1 | 360.4 | 178 | 136.3 |
| 20071203 | 130 | ebb | 3.7 | 0.3 | 109.2 | 0.3 | 301.5 | 112.5 | 140.2 | 29.3 | 36.8 |
| 20071203 | 131 | flood | 3.7 | 0.3 | 170.4 | 0.3 | 177.9 | 192.3 | 212.2 | 64.9 | 60.5 |
| 20071203 | 131 | ebb | 4.4 | 0.3 | 79.6 | 0.3 | 309 | 110 | 129.3 | 35 | 39.5 |
| 20071203 | 132 | flood | 4.4 | 0.4 | 171.6 | 0.3 | 167.5 | 291.4 | 289.9 | 108 | 94.8 |
| 20071204 | 132 | ebb | 4.3 | 0.4 | 106.3 | 0.3 | 298.3 | 121.7 | 140.6 | 43.1 | 42.4 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071204 | 133 | flood | 3.6 | 0.3 | 166.1 | 0.3 | 171.9 | 277.9 | 301.2 | 86.7 | 80.9 |
| 20071204 | 133 | ebb | 4.7 | 0.4 | 107.8 | 0.3 | 298 | 136.5 | 178.6 | 40.9 | 47.8 |
| 20071205 | 134 | flood | 4.3 | 0.4 | 164.8 | 0.4 | 163.8 | 321.2 | 322.9 | 144.8 | 127.5 |
| 20071205 | 134 | ebb | 4.1 | 0.4 | 114.7 | 0.3 | 309 | 173.8 | 188 | 55.2 | 52.6 |

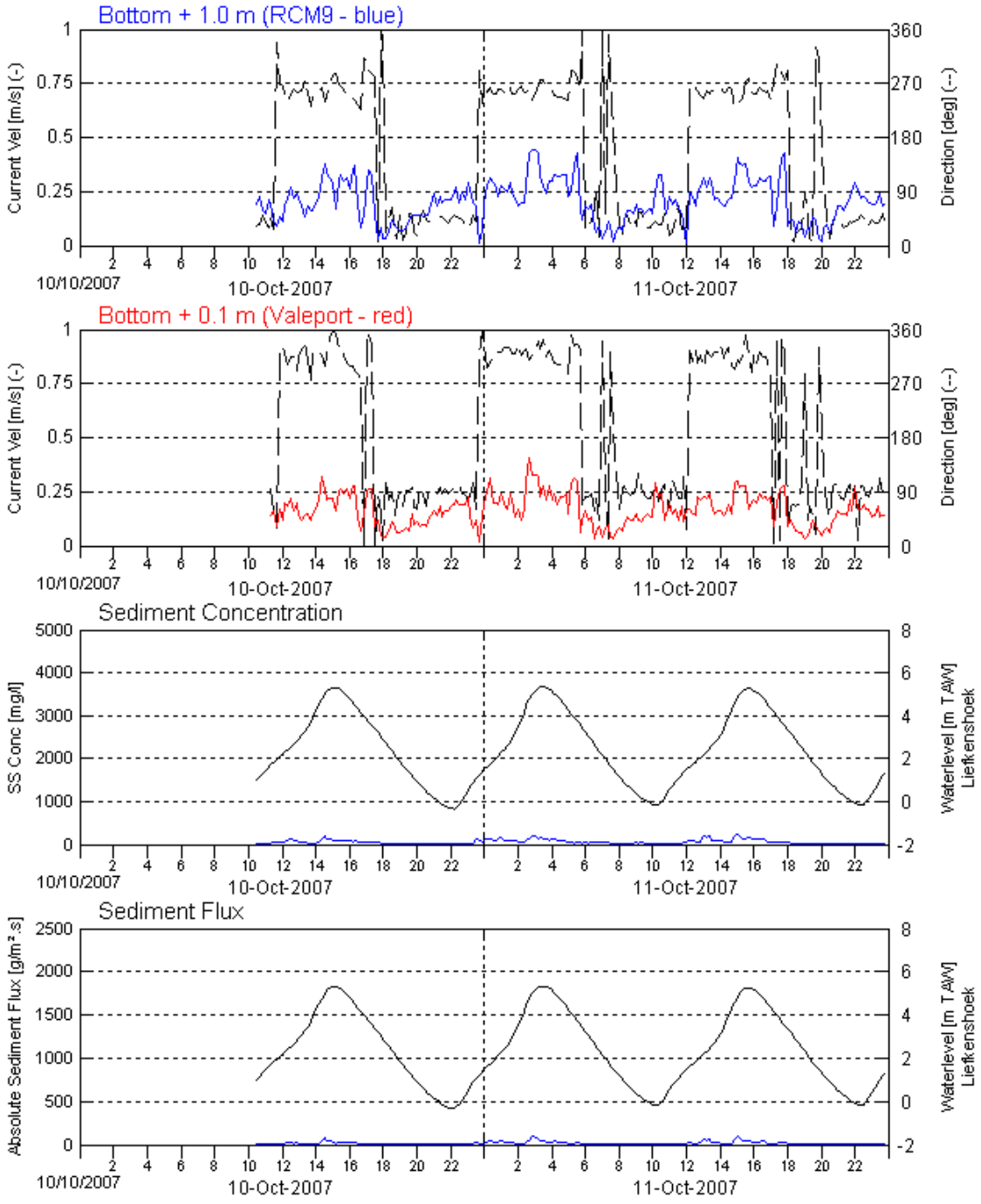
# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




| | | |
|---|---|---|
| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | *Data processed by:* IMDC |
| Location: Deurganckdok CDW | Date: Avg Tide 23/10– 24/10 | *In association with:* wl \| delft hydraulics, GEMS International |
| | | *I/RA/11283/07.093/MSA* |

## D.2 Sill Frame

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok
Sill

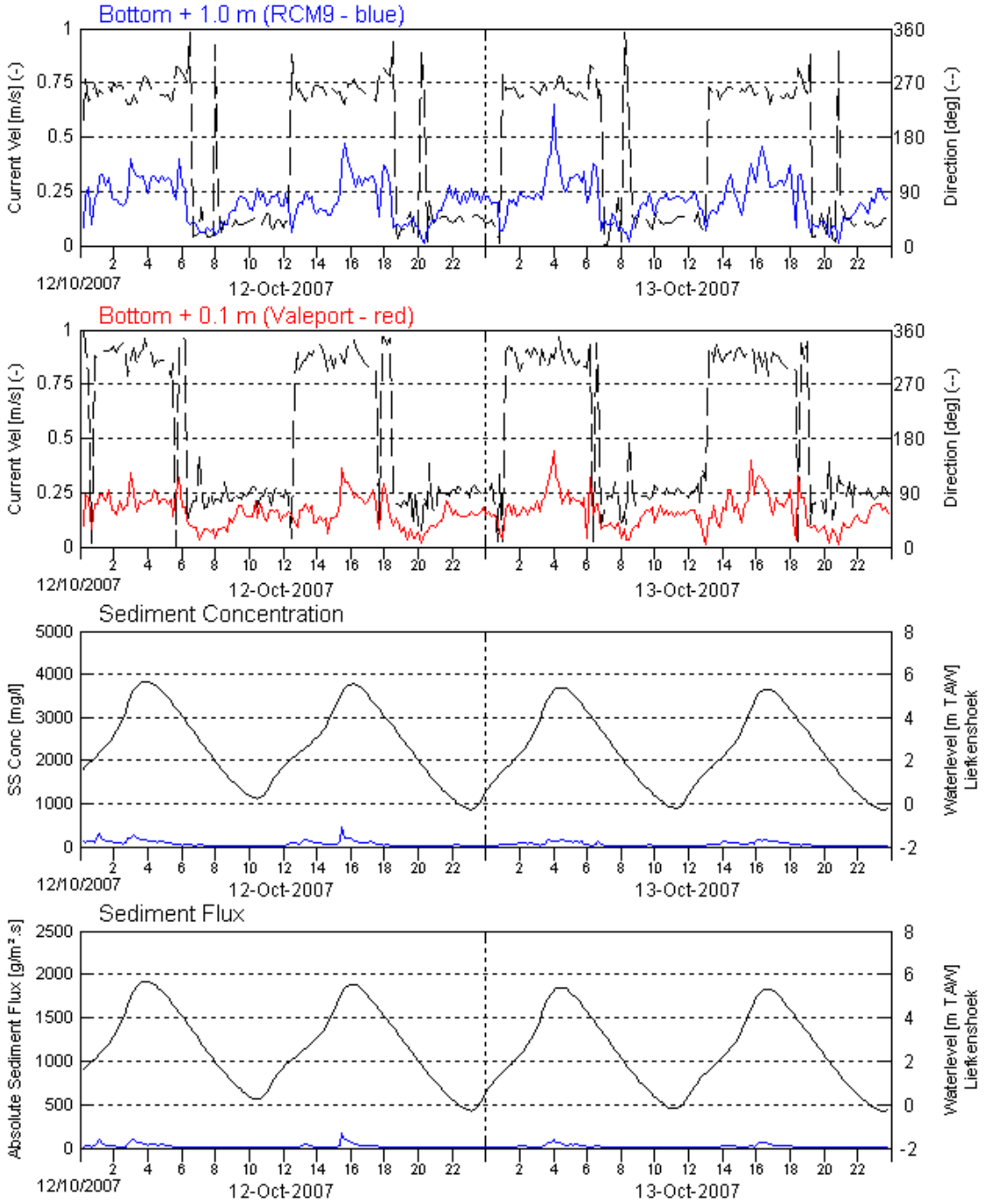
Date:
10/10/2007– 11/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

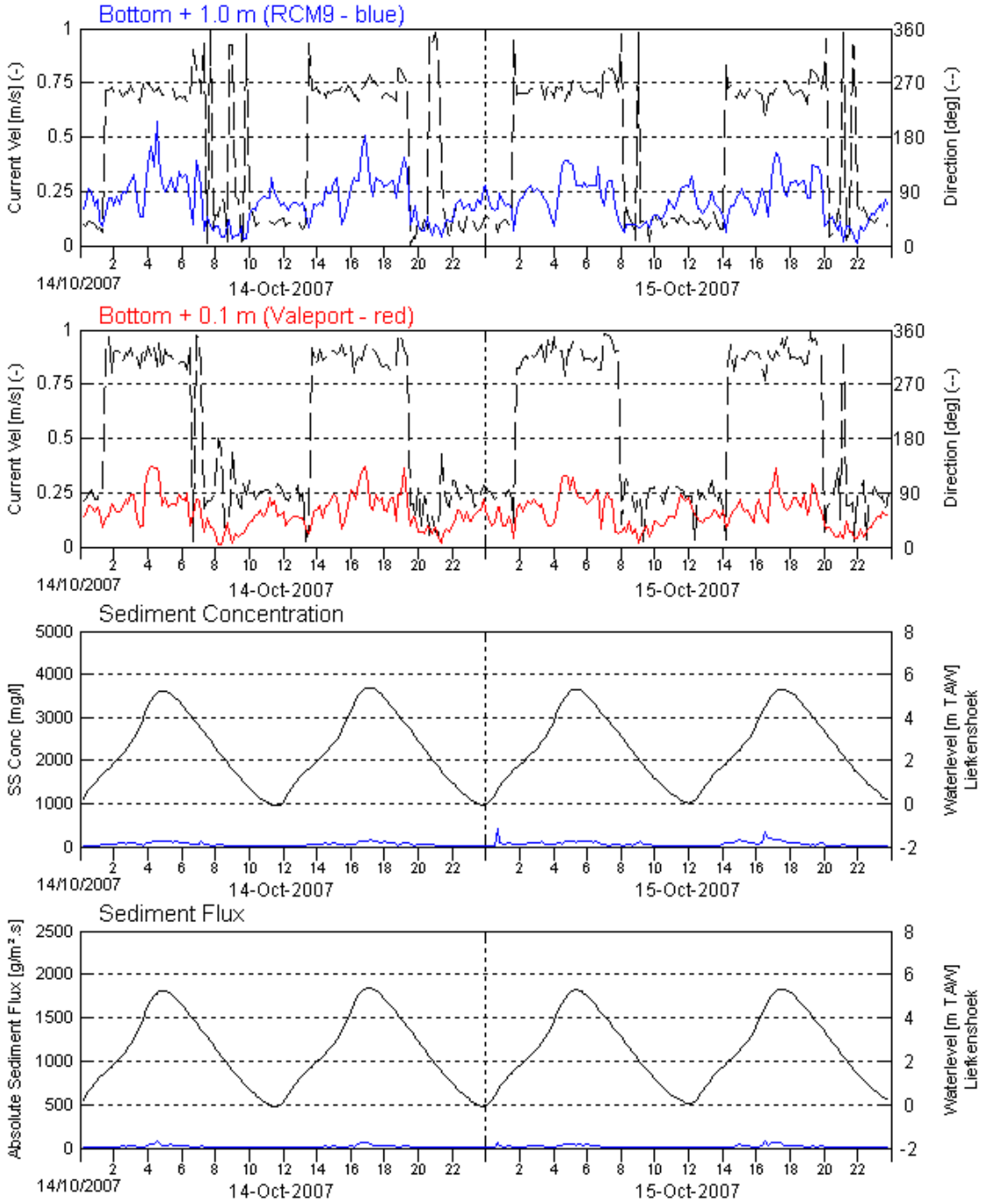
Date:
12/10/2007– 13/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

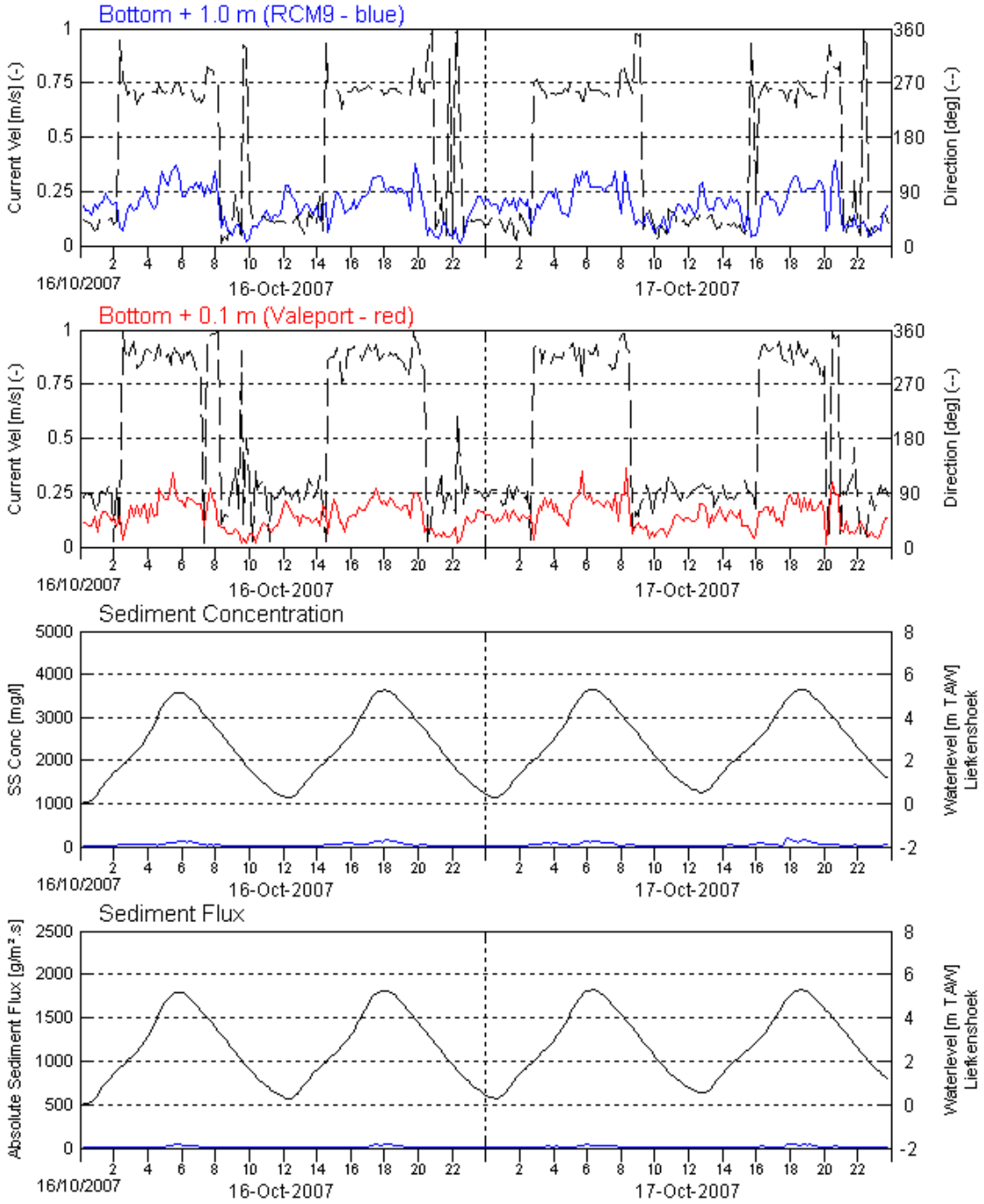
Date: 14/10/2007– 15/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

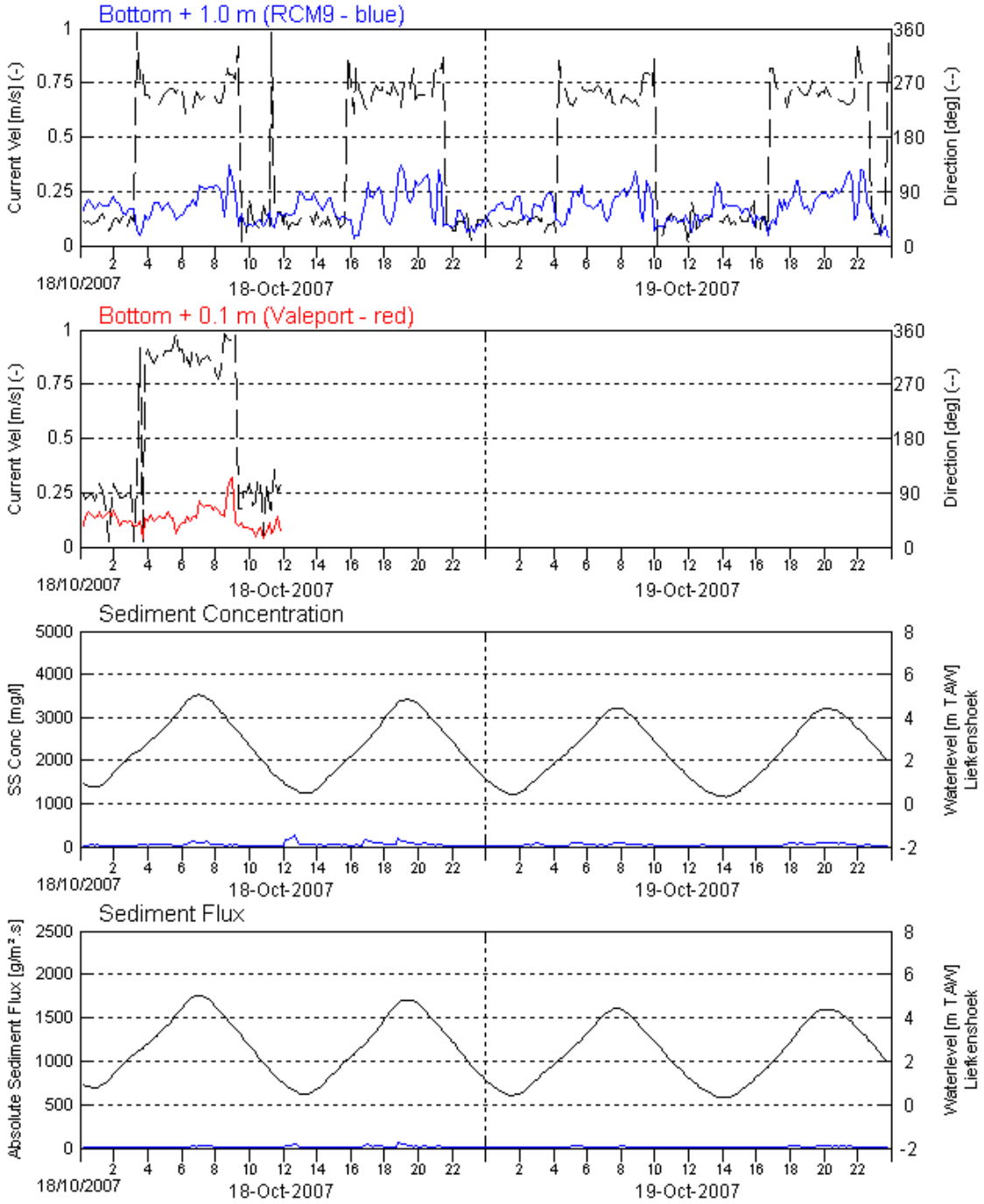
Date: 16/10/2007– 17/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

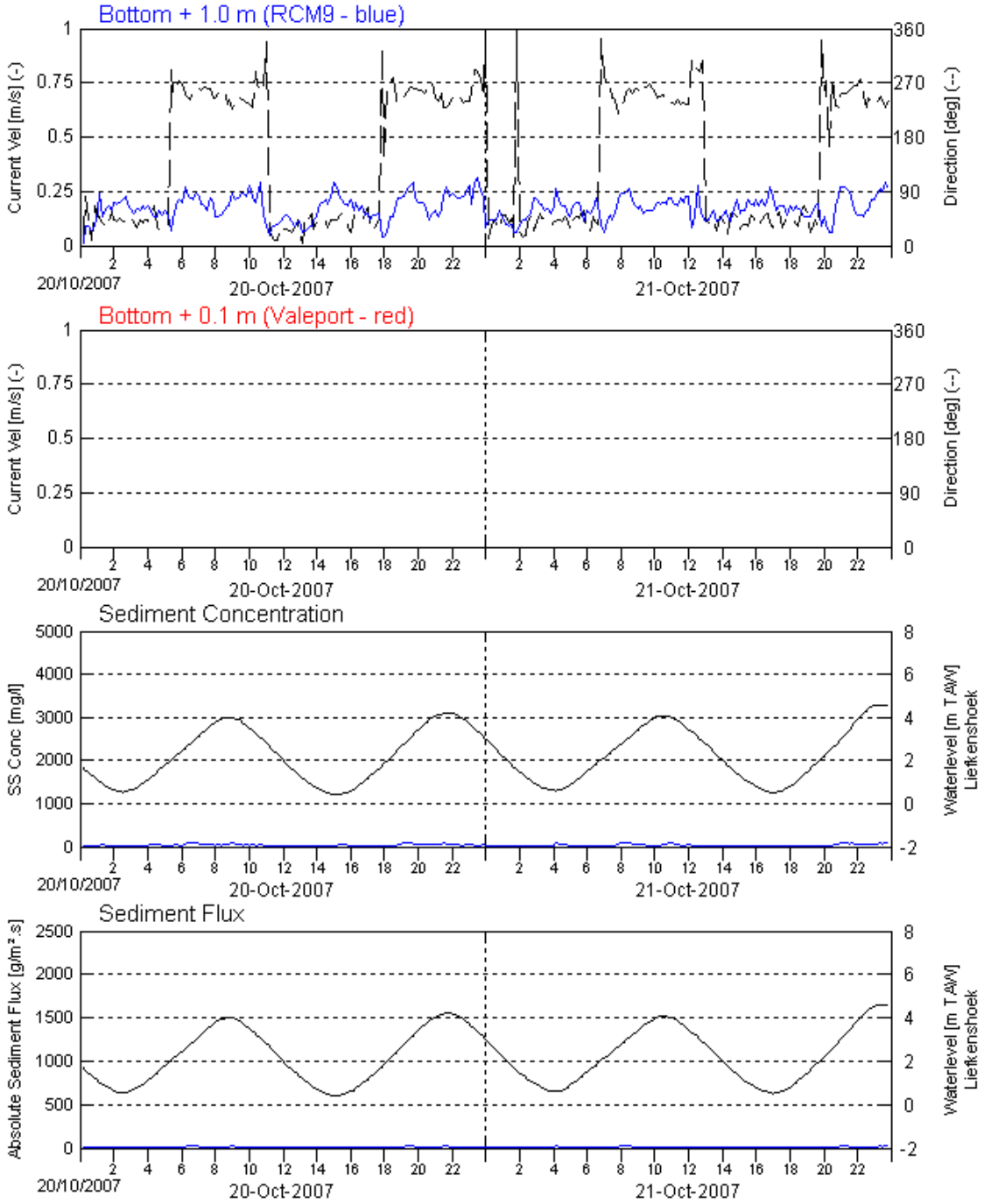
Date: 18/10/2007– 19/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

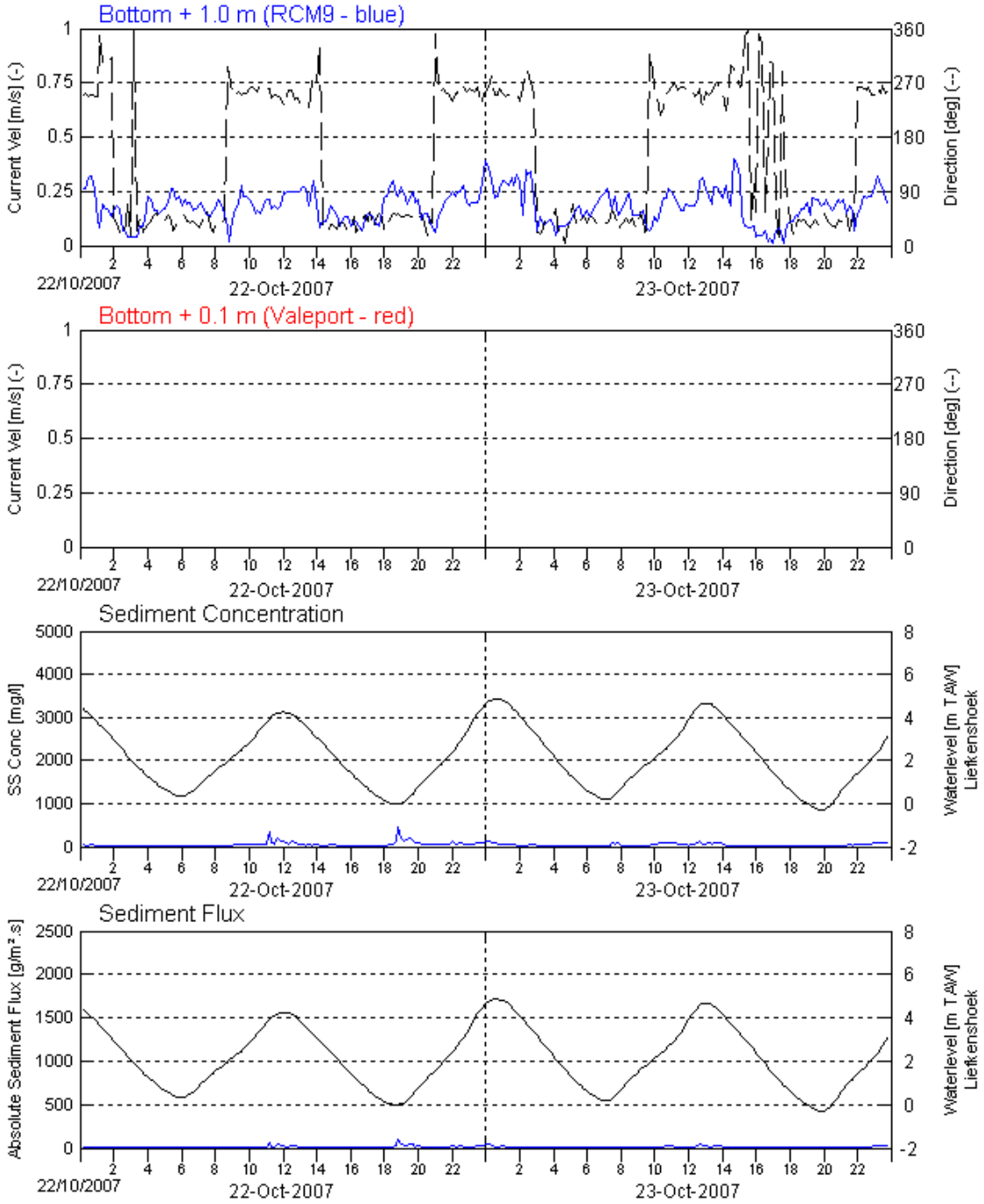
Date:
20/10/2007– 21/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

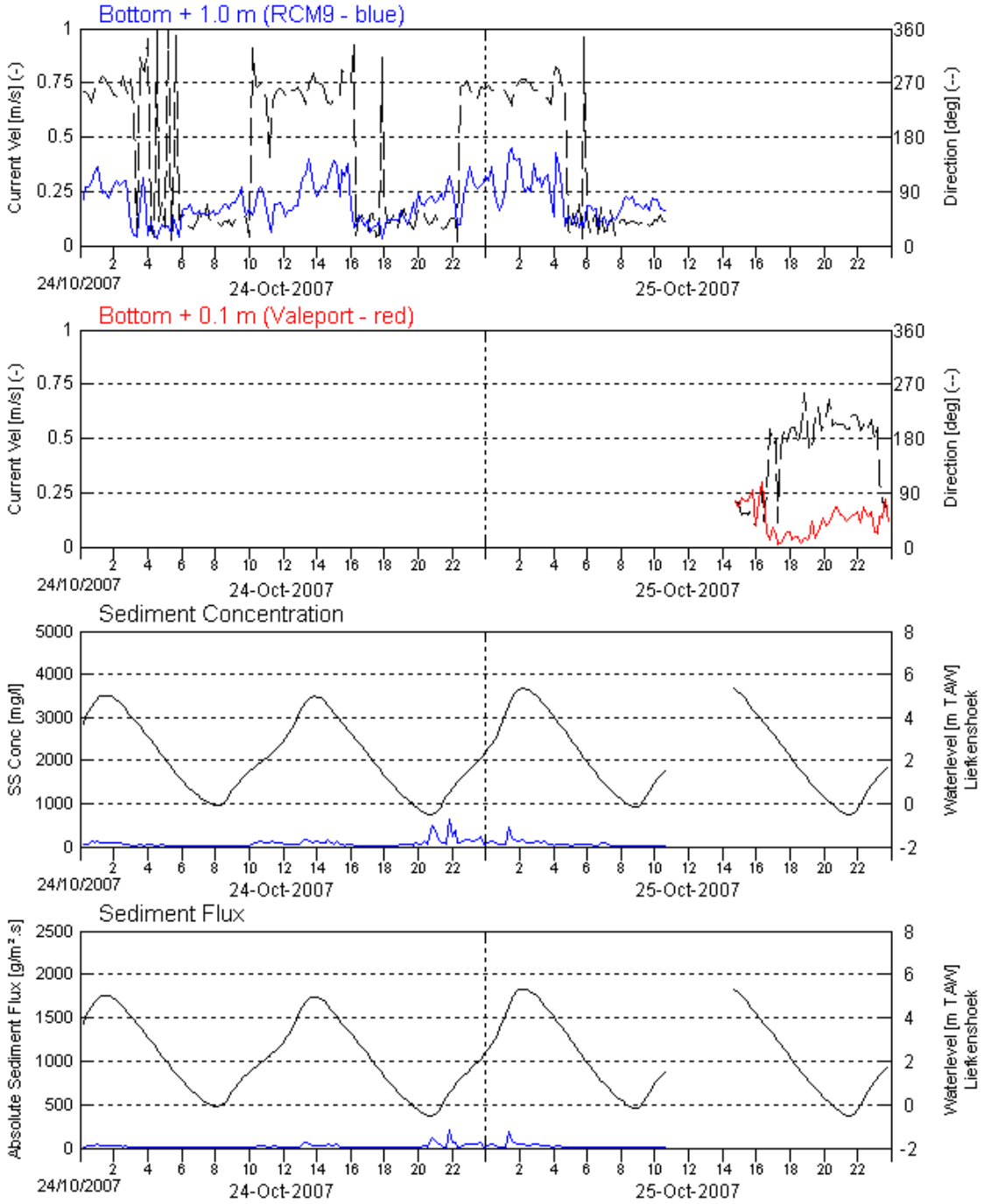
Date:
22/10/2007– 23/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

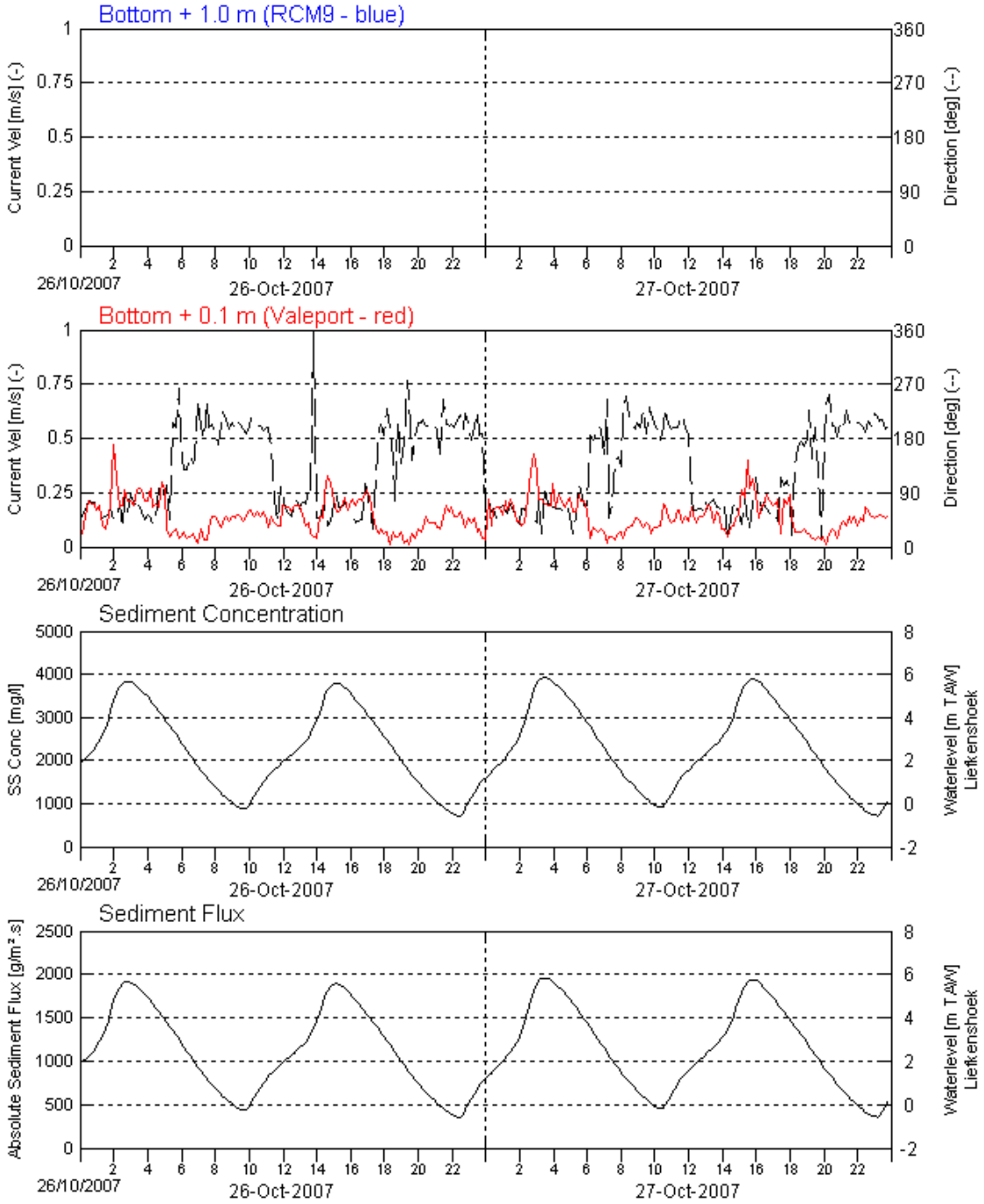
Date:
24/10/2007– 25/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

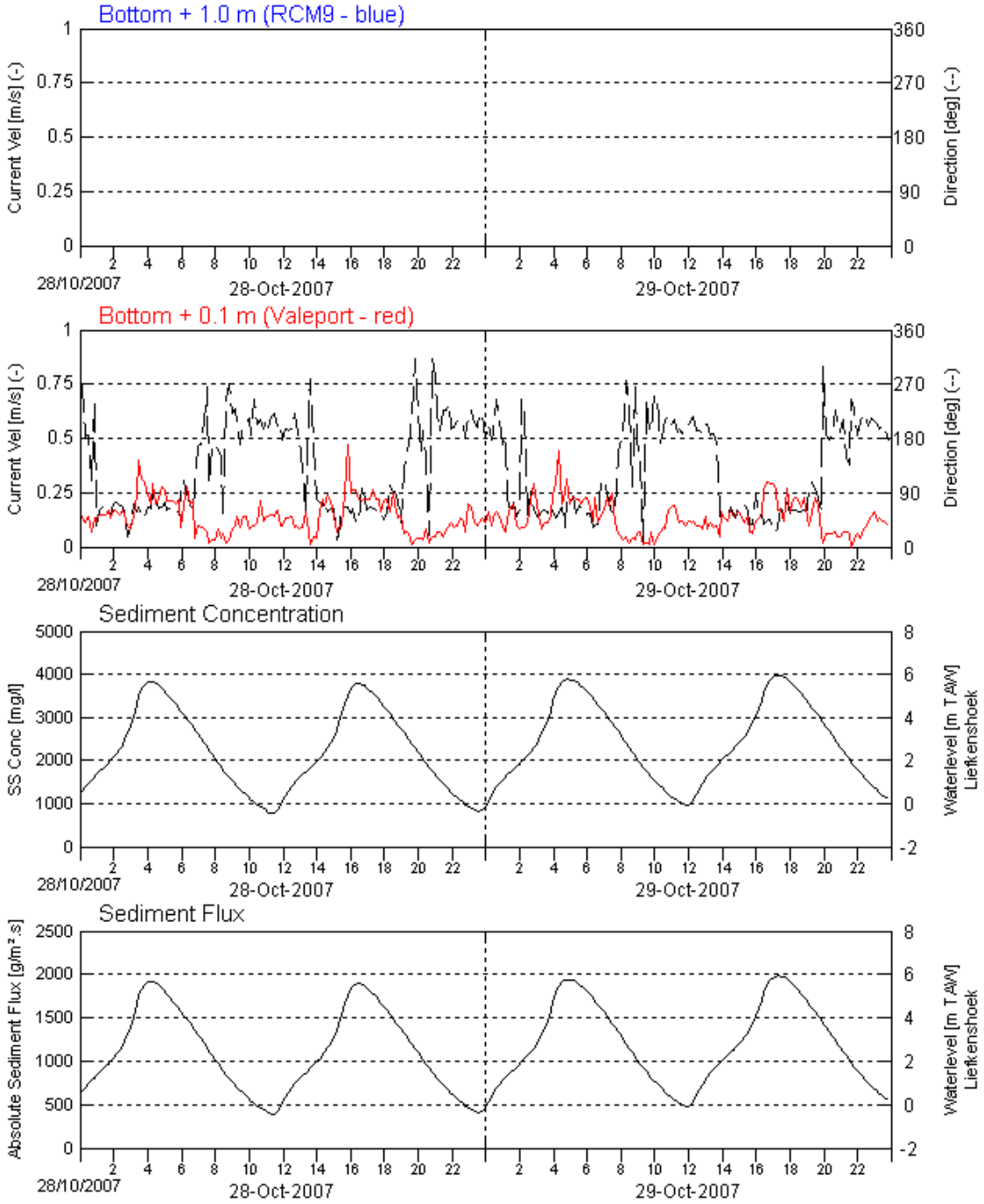
Date: 26/10/2007– 27/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

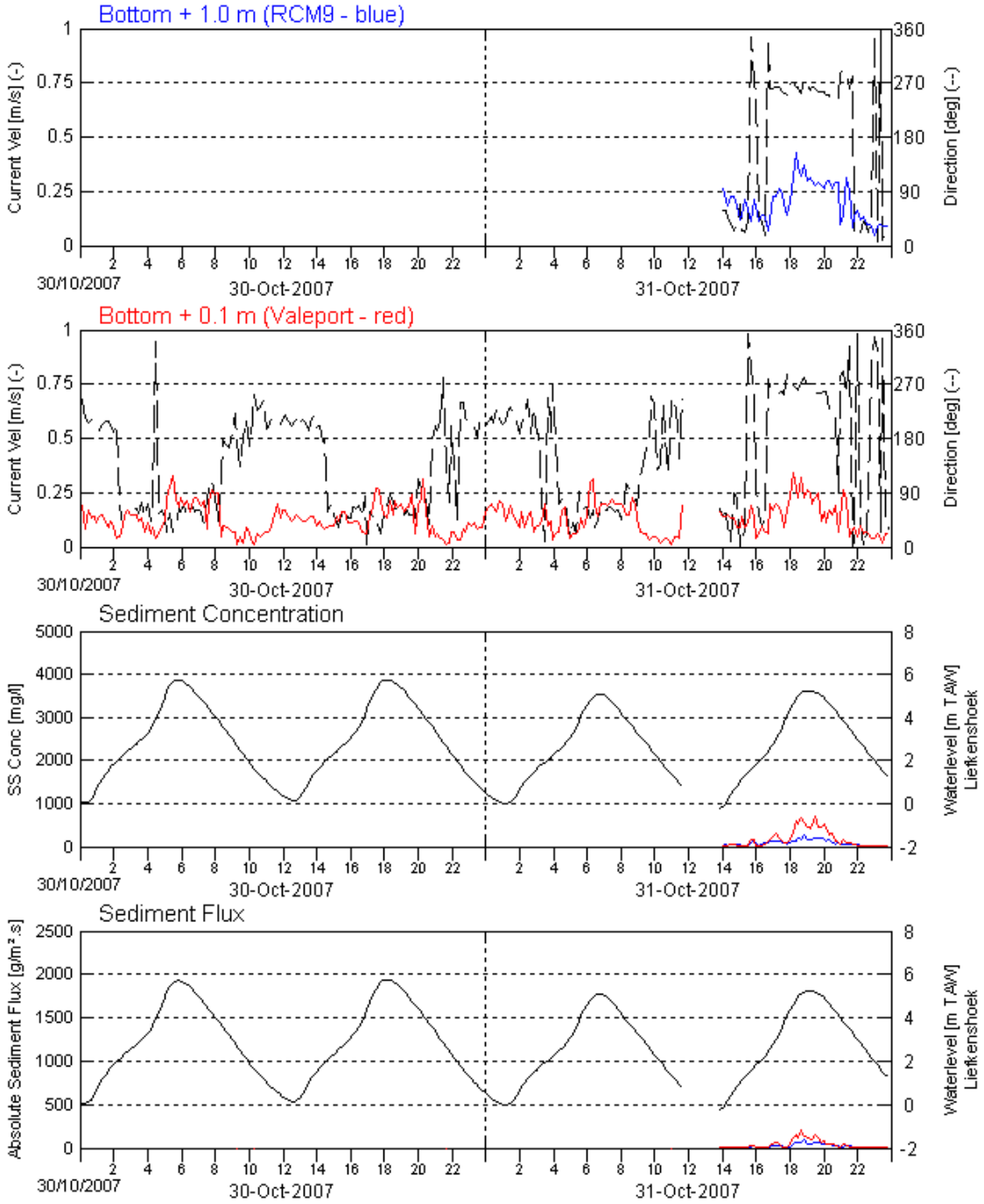
Date: 28/10/2007– 29/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

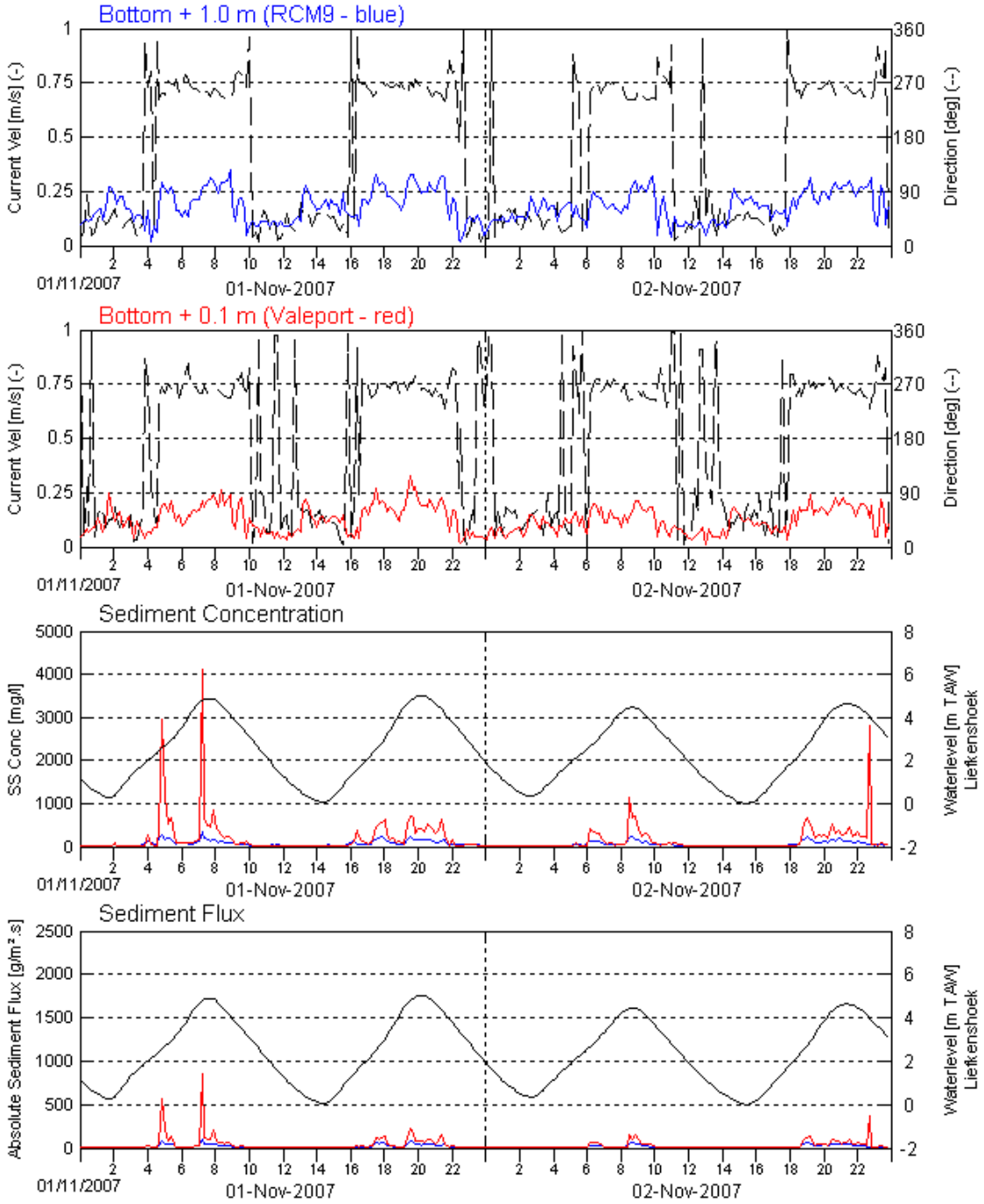
Date:
30/10/2007– 31/10/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

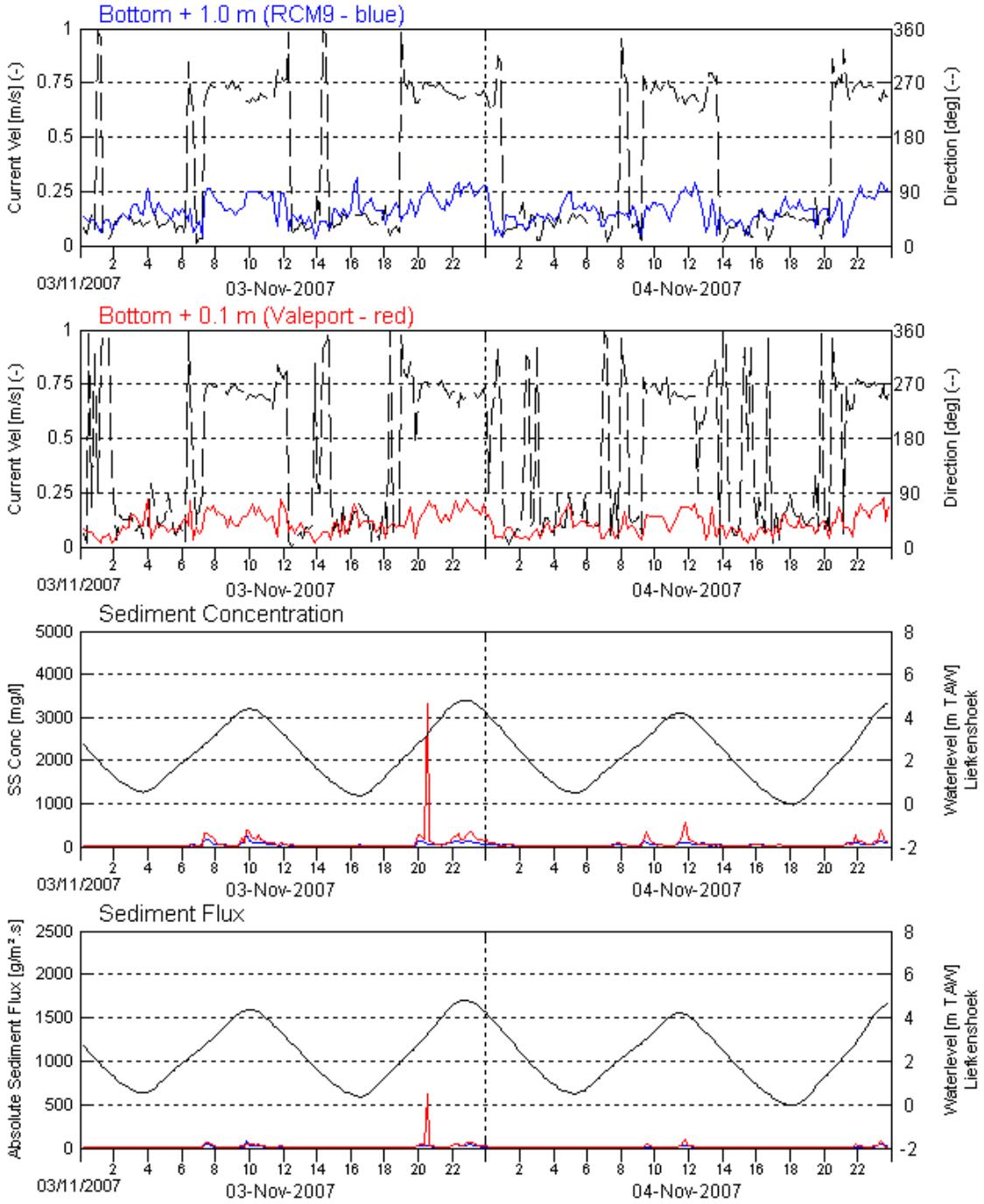
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 01/11/2007– 02/11/2007 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

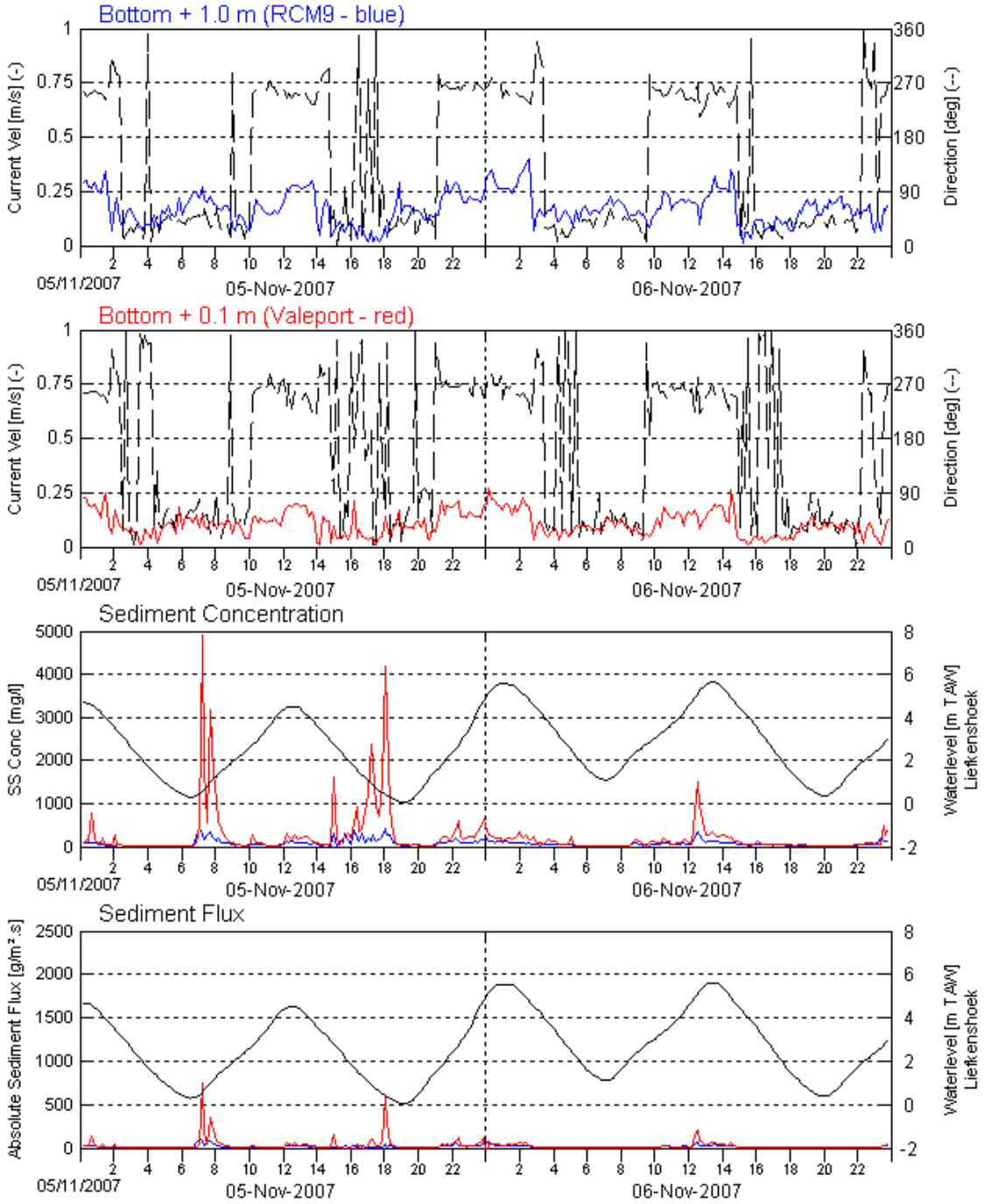
Date:
03/11/2007– 04/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

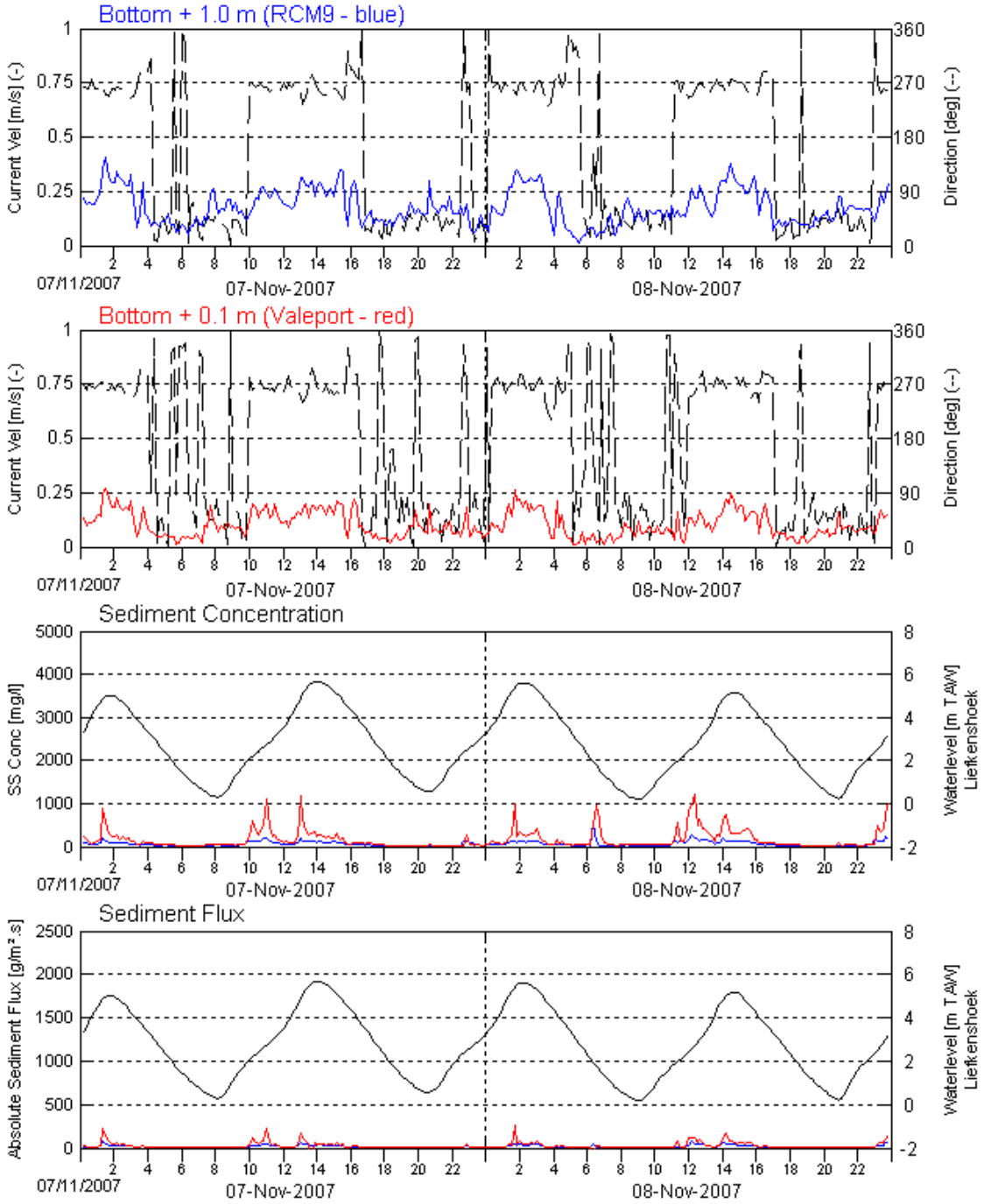
Date: 05/112007– 06/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

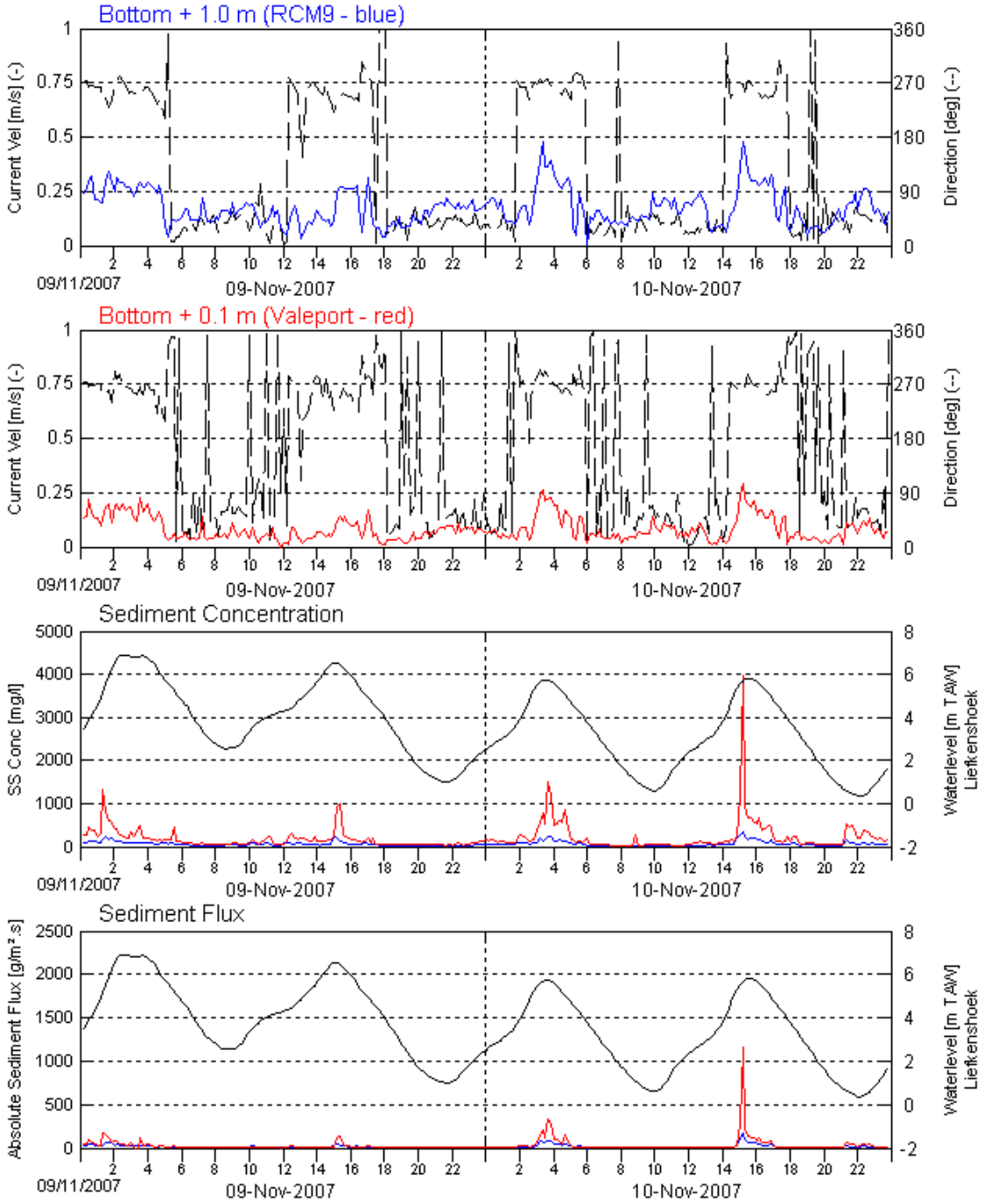
Date: 07/11/2007– 08/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

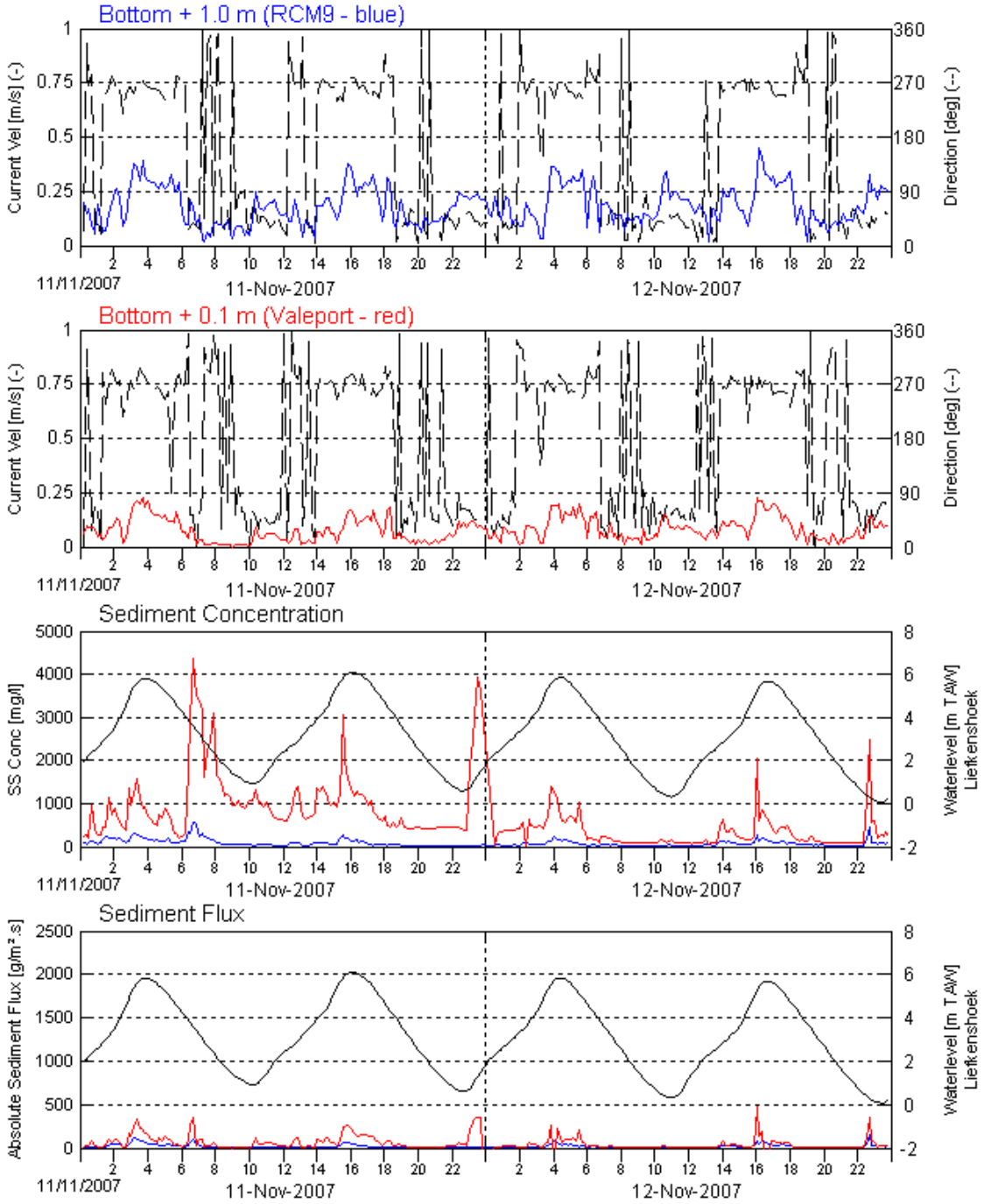
Date: 09/11/2007– 10/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

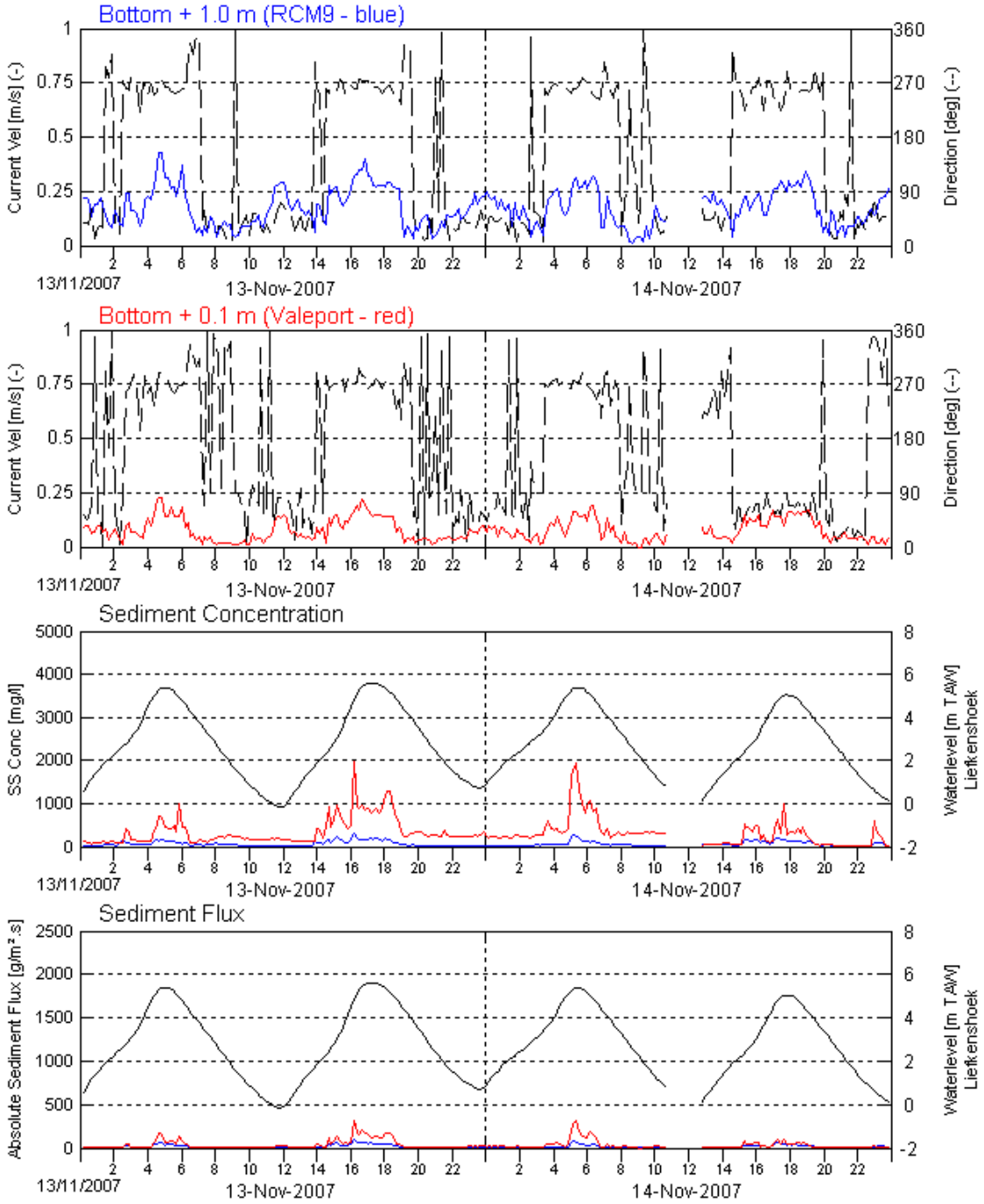
Date:
11/11/2007– 12/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

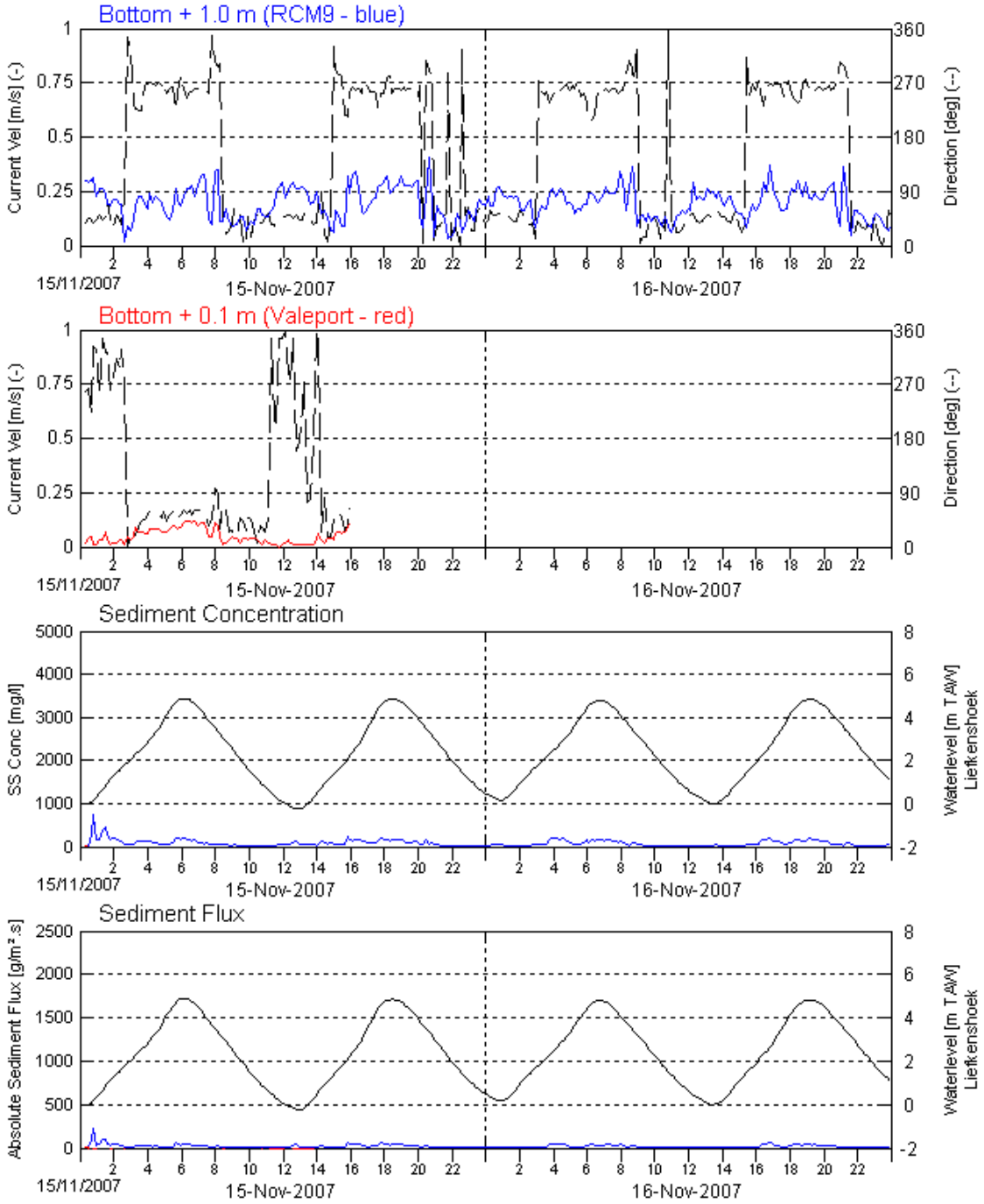
Date: 13/11/2007– 14/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

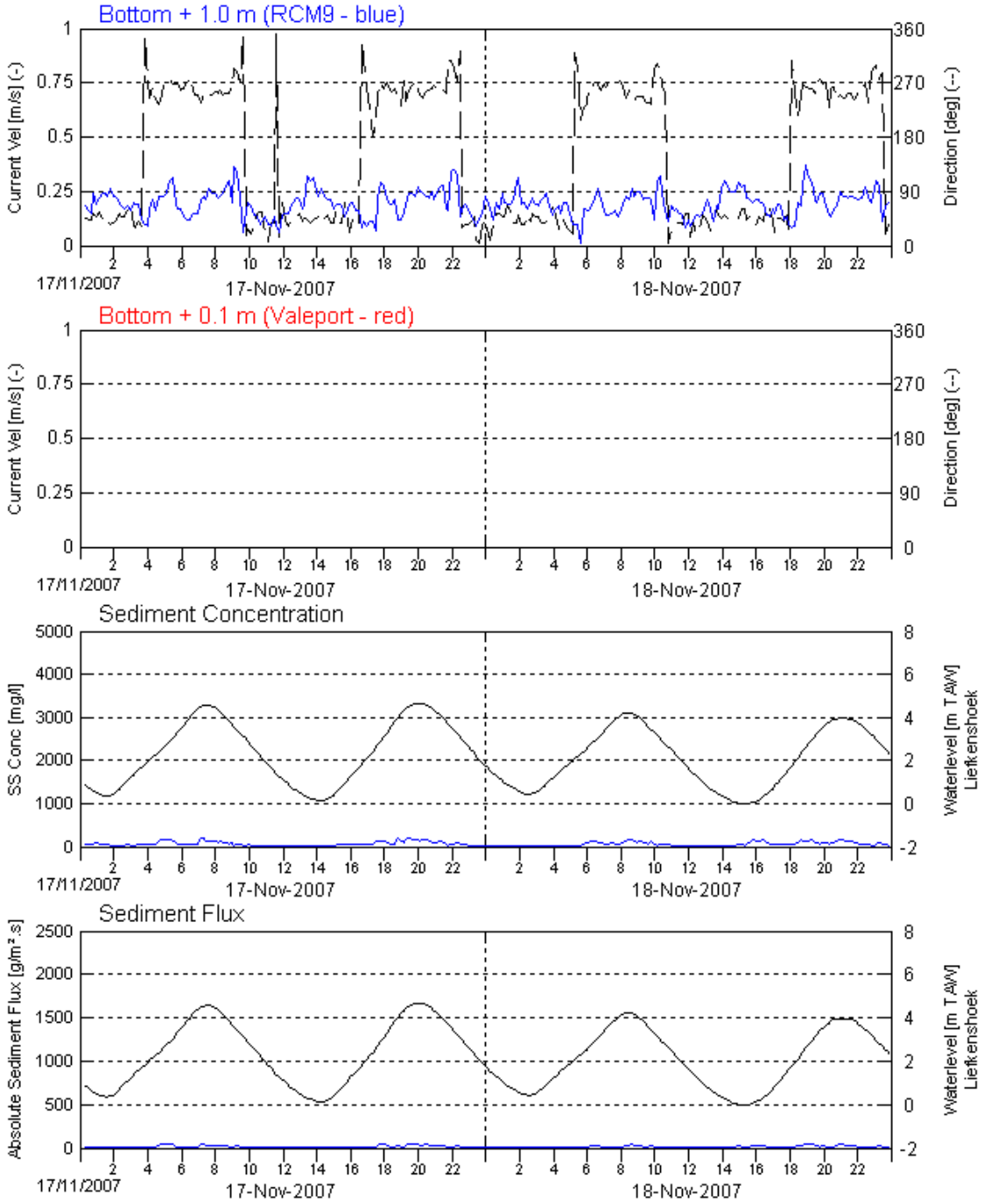
Date:
15/11/2007– 16/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

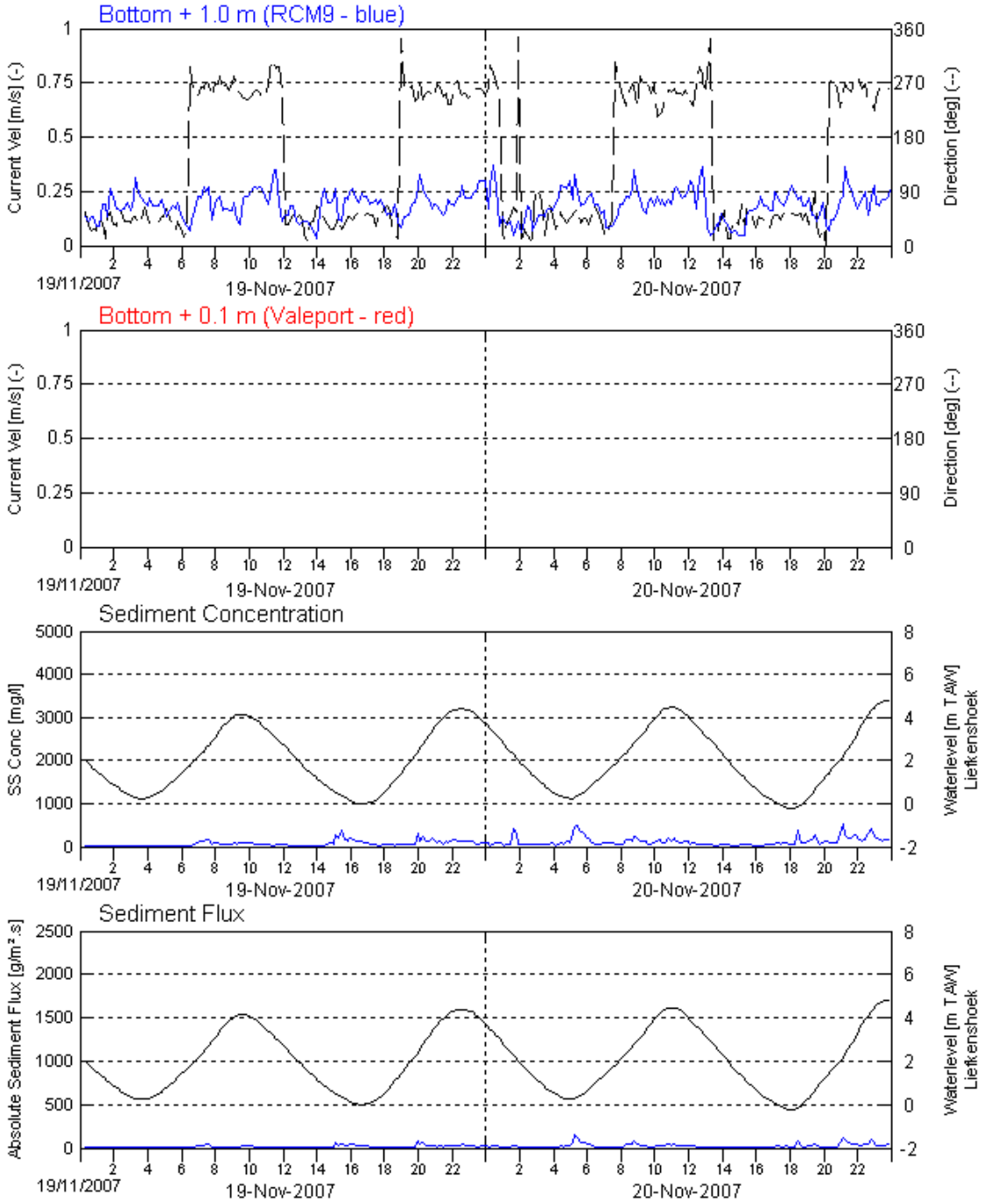
Date:
17/11/2007– 18/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

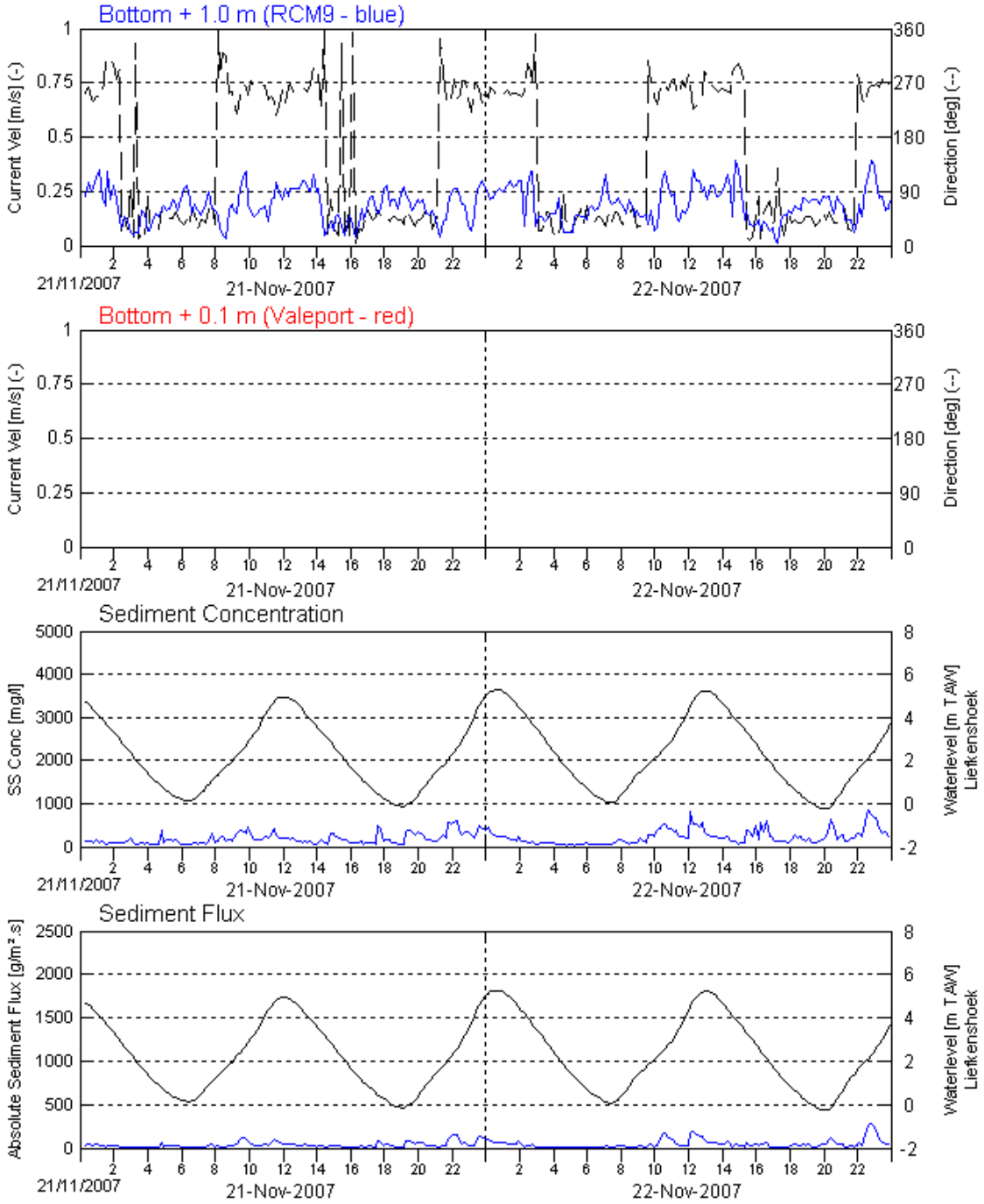
Date:
19/11/2007– 20/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

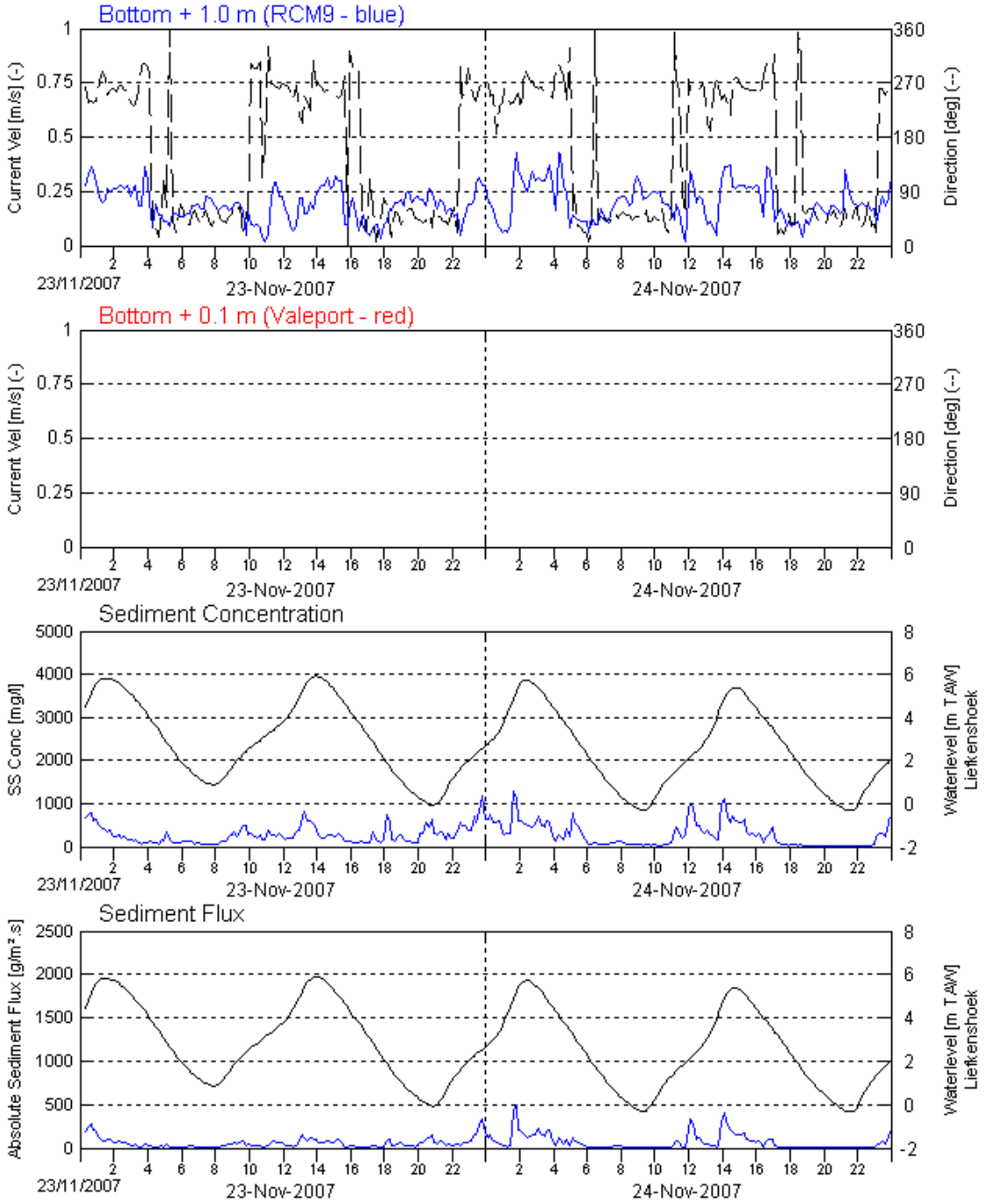
Date:
21/11/2007– 22/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

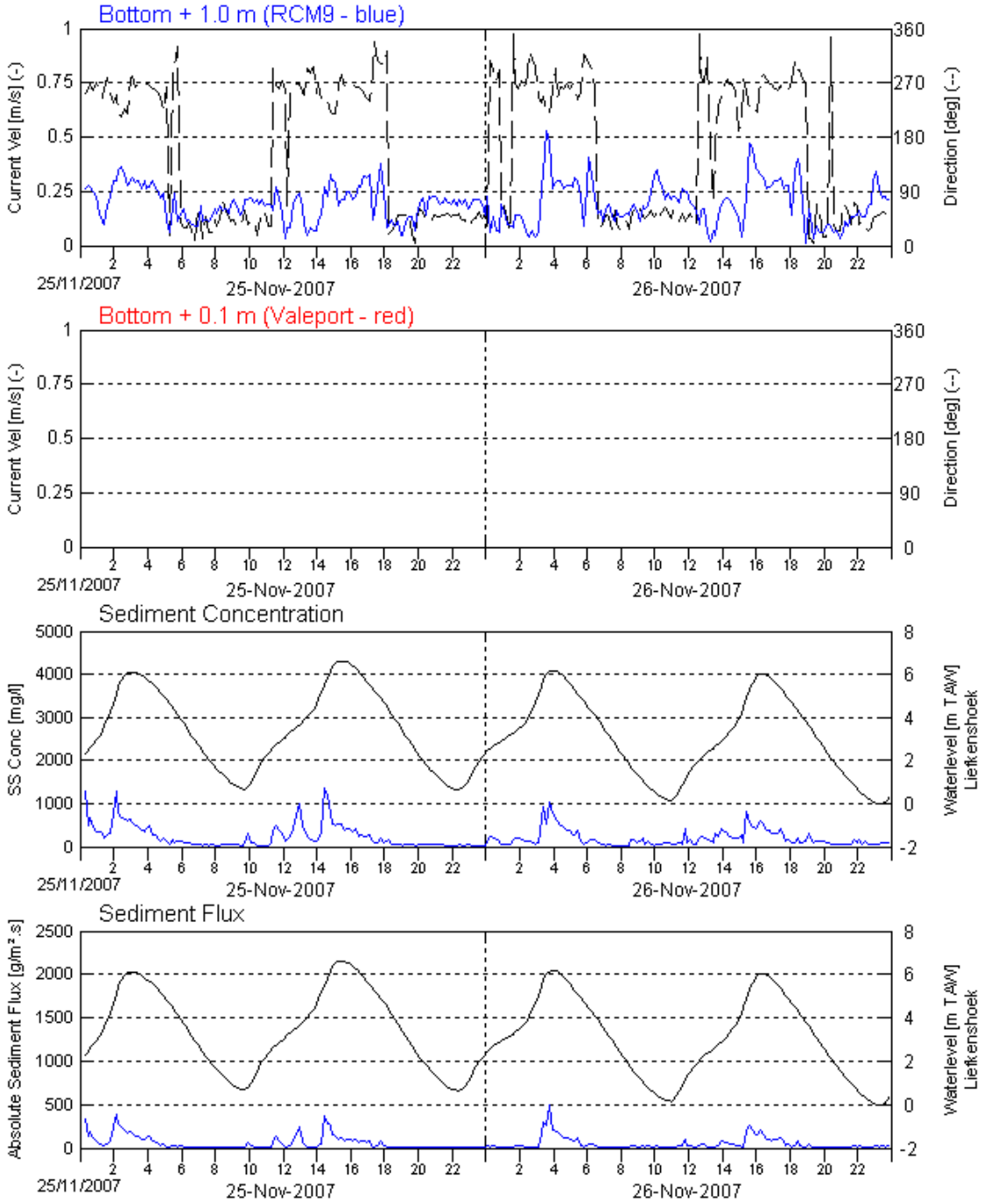
Date:
23/11/2007– 24/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location:
Deurganckdok Sill

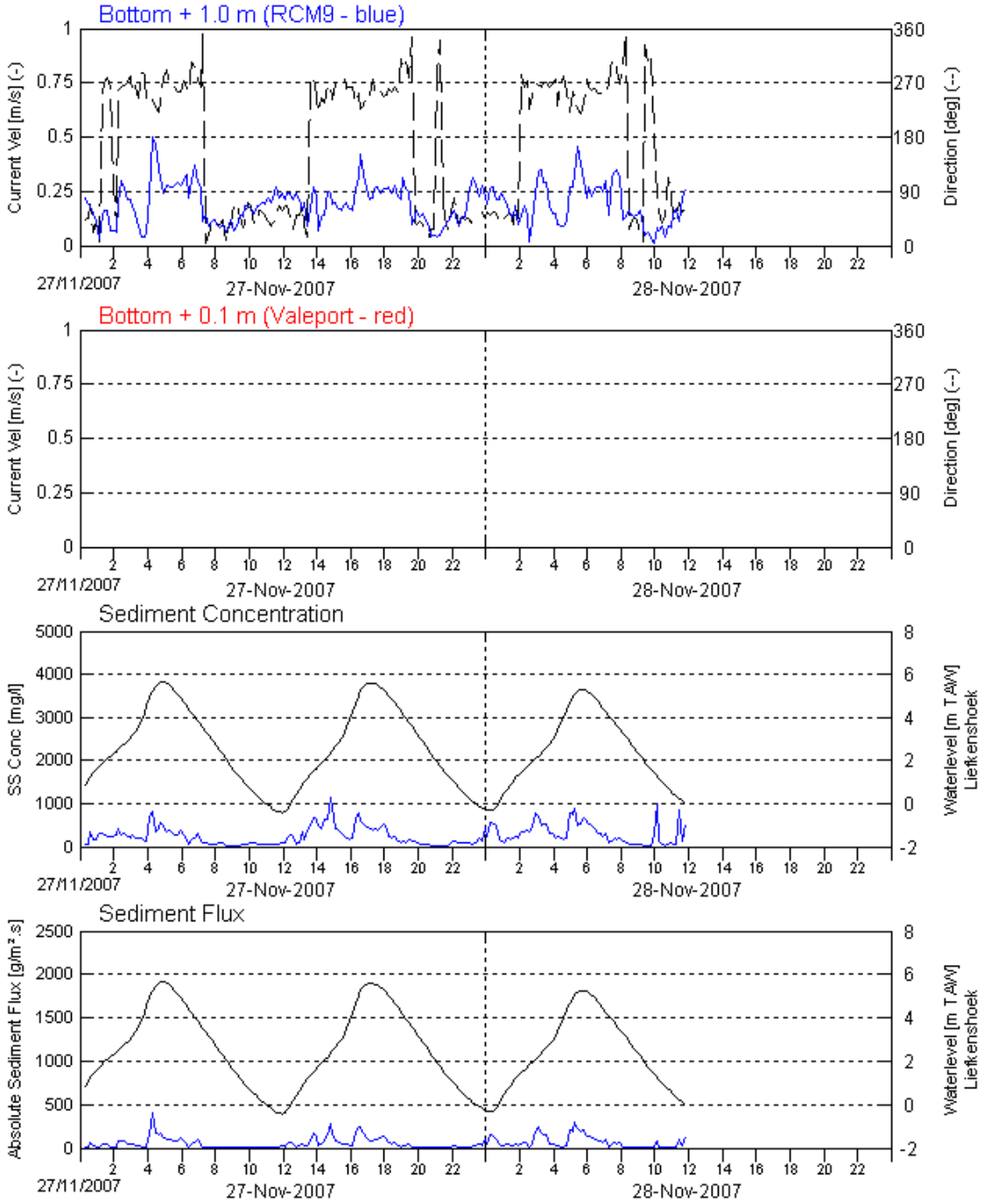
Date:
25/11/2007– 26/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel

Location: Deurganckdok Sill

Date: 27/11/2007– 28/11/2007

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07/093/MSA*

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071010 | 1 | flood | 4.5 | 0.2 | 211.8 | 0.2 | 279.3 | 64.3 | - | 15.2 | -176.4 |
| 20071010 | 1 | ebb | 5.6 | 0.2 | 128.6 | 0.1 | 143.6 | 39.5 | - | 8.8 | -144 |
| 20071011 | 2 | flood | 5.6 | 0.3 | 205.2 | 0.2 | 265.2 | 90.5 | - | 25.8 | -209.1 |
| 20071011 | 2 | ebb | 5.5 | 0.2 | 147.4 | 0.1 | 172.4 | 48.1 | - | 10.4 | -146.2 |
| 20071011 | 3 | flood | 5.4 | 0.2 | 181.8 | 0.2 | 239 | 85.7 | - | 24.1 | -190.9 |
| 20071011 | 3 | ebb | 5.4 | 0.2 | 135.5 | 0.1 | 150.9 | 44.6 | - | 10.3 | -146.2 |
| 20071012 | 4 | flood | 5.8 | 0.2 | 198.1 | 0.2 | 243.6 | 109.3 | - | 28.9 | -183 |
| 20071012 | 4 | ebb | 5.4 | 0.2 | 135.6 | 0.1 | 156.5 | 51.1 | - | 11.6 | -147.2 |
| 20071012 | 5 | flood | 5.3 | 0.2 | 188.3 | 0.2 | 233.2 | 86.3 | - | 22.9 | -167.4 |
| 20071012 | 5 | ebb | 5.8 | 0.2 | 126.8 | 0.1 | 147.4 | 41.4 | - | 9.8 | -141.9 |
| 20071013 | 6 | flood | 5.6 | 0.2 | 188 | 0.2 | 233.7 | 60.8 | - | 18.3 | -188.1 |
| 20071013 | 6 | ebb | 5.6 | 0.2 | 137.5 | 0.1 | 153.9 | 48.9 | - | 11.7 | -146.6 |
| 20071013 | 7 | flood | 5.5 | 0.2 | 185.6 | 0.2 | 244.1 | 65.3 | - | 17.9 | -185.5 |
| 20071013 | 7 | ebb | 5.6 | 0.2 | 124.8 | 0.1 | 153.7 | 44.8 | - | 9.9 | -136.1 |
| 20071014 | 8 | flood | 5.5 | 0.2 | 180.9 | 0.2 | 238.5 | 58.2 | - | 16.8 | -199.1 |
| 20071014 | 8 | ebb | 5.3 | 0.2 | 155.7 | 0.1 | 161.6 | 51.5 | - | 11.6 | -135.2 |
| 20071014 | 9 | flood | 5.5 | 0.2 | 186.4 | 0.2 | 232.6 | 55.8 | - | 15.1 | -177.9 |
| 20071014 | 9 | ebb | 5.5 | 0.2 | 144.7 | 0.1 | 158.8 | 51.8 | - | 11.6 | -145.4 |
| 20071015 | 10 | flood | 5.3 | 0.2 | 193.5 | 0.2 | 241.8 | 81.5 | - | 19.9 | -178.8 |
| 20071015 | 10 | ebb | 5.2 | 0.2 | 140.4 | 0.1 | 173.7 | 57.3 | - | 11.8 | -146.2 |
| 20071015 | 11 | flood | 5.3 | 0.2 | 177.2 | 0.2 | 220.7 | 88.7 | - | 20.9 | -168.5 |
| 20071016 | 11 | ebb | 5.3 | 0.2 | 151.9 | 0.1 | 166.7 | 41.6 | - | 9.1 | -131 |
| 20071016 | 12 | flood | 5.1 | 0.2 | 186 | 0.2 | 230.9 | 47.3 | - | 11.3 | -163.9 |
| 20071016 | 12 | ebb | 4.9 | 0.2 | 133.3 | 0.1 | 168.2 | 38.8 | - | 8.1 | -124.9 |
| 20071016 | 13 | flood | 5 | 0.2 | 183.2 | 0.2 | 227.6 | 53.8 | - | 12 | -155.9 |
| 20071017 | 13 | ebb | 4.9 | 0.2 | 167.6 | 0.1 | 168.2 | 41.9 | - | 8.7 | -130 |
| 20071017 | 14 | flood | 5 | 0.2 | 173.7 | 0.2 | 231.3 | 51 | - | 11.9 | -170 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071017 | 14 | ebb | 4.7 | 0.2 | 142.6 | 0.1 | 162.4 | 39.4 | - | 8.7 | -140 |
| 20071017 | 15 | flood | 4.7 | 0.2 | 151.2 | 0.1 | 194.8 | 55.7 | - | 11.9 | -146.9 |
| 20071018 | 15 | ebb | 4.5 | 0.2 | 144.6 | 0.1 | 150.9 | 46.2 | - | 9.5 | -126.7 |
| 20071018 | 16 | flood | 4.2 | 0.2 | 169.7 | 0.1 | 210.2 | 42.3 | - | 7.4 | -127.4 |
| 20071018 | 16 | ebb | 4.5 | 0.2 | 131.1 | 0.1 | 190.2 | 58.1 | - | 11.1 | -134.1 |
| 20071018 | 17 | flood | 4.3 | 0.2 | 172.5 | - | - | 63.7 | - | 14.1 | - |
| 20071019 | 17 | ebb | 4.4 | 0.2 | 116.9 | - | - | 33.7 | - | 6.7 | - |
| 20071019 | 18 | flood | 4 | 0.2 | 161.3 | - | - | 46 | - | 8.7 | - |
| 20071019 | 18 | ebb | 4.1 | 0.2 | 115.8 | - | - | 33.2 | - | 6.4 | - |
| 20071019 | 19 | flood | 4.1 | 0.2 | 168.9 | - | - | 44.4 | - | 8.9 | - |
| 20071020 | 19 | ebb | 3.9 | 0.2 | 139.6 | - | - | 38.3 | - | 7.7 | - |
| 20071020 | 20 | flood | 3.5 | 0.2 | 162.9 | - | - | 40.1 | - | 7.4 | - |
| 20071020 | 20 | ebb | 3.6 | 0.2 | 113.2 | - | - | 27.7 | - | 5.1 | - |
| 20071020 | 21 | flood | 3.8 | 0.2 | 168 | - | - | 40.7 | - | 8 | - |
| 20071021 | 21 | ebb | 3.6 | 0.2 | 124.4 | - | - | 28.6 | - | 5.6 | - |
| 20071021 | 22 | flood | 3.4 | 0.2 | 172 | - | - | 38.3 | - | 7.3 | - |
| 20071021 | 22 | ebb | 3.6 | 0.2 | 118.3 | - | - | 25.8 | - | 4.9 | - |
| 20071021 | 23 | flood | 4.1 | 0.2 | 163.5 | - | - | 37.4 | - | 7.3 | - |
| 20071022 | 23 | ebb | 4.2 | 0.2 | 132.3 | - | - | 28.3 | - | 5.6 | - |
| 20071022 | 24 | flood | 3.9 | 0.2 | 165.8 | - | - | 54.1 | - | 10.2 | - |
| 20071022 | 24 | ebb | 4.3 | 0.2 | 107.9 | - | - | 37.5 | - | 7.6 | - |
| 20071023 | 25 | flood | 4.9 | 0.2 | 181.7 | - | - | 92.9 | - | 21.3 | - |
| 20071023 | 25 | ebb | 4.7 | 0.2 | 113 | - | - | 30.1 | - | 6.4 | - |
| 20071023 | 26 | flood | 4.5 | 0.2 | 167.1 | - | - | 50.7 | - | 10.2 | - |
| 20071023 | 26 | ebb | 5 | 0.2 | 167.5 | - | - | 27.5 | - | 5.1 | - |
| 20071024 | 27 | flood | 5.3 | 0.2 | 182.4 | - | - | 53.5 | - | 13.4 | - |
| 20071024 | 27 | ebb | 5.1 | 0.2 | 146.5 | - | - | 38.3 | - | 7 | - |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071024 | 28 | flood | 5.1 | 0.2 | 181.8 | - | - | 69.3 | - | 15.2 | - |
| 20071024 | 28 | ebb | 5.5 | 0.2 | 124.7 | - | - | 55 | - | 12.2 | - |
| 20071025 | 29 | flood | 5.8 | 0.3 | 191.7 | - | - | 172 | - | 48.5 | - |
| 20071025 | 29 | ebb | 5.5 | 0.2 | 129.6 | - | - | 52.7 | - | 11.8 | - |
| 20071026 | 30 | flood | 5.8 | 0.2 | 39 | - | - | 28.5 | - | - | - |
| 20071026 | 30 | ebb | 5.9 | - | - | - | - | - | - | - | - |
| 20071026 | 31 | flood | 5.8 | - | - | - | - | - | - | - | - |
| 20071026 | 31 | ebb | 6.1 | - | - | - | - | - | - | - | - |
| 20071027 | 32 | flood | 6.4 | - | - | - | - | - | - | - | - |
| 20071027 | 32 | ebb | 6 | - | - | - | - | - | - | - | - |
| 20071027 | 33 | flood | 5.9 | - | - | - | - | - | - | - | - |
| 20071027 | 33 | ebb | 6.3 | - | - | - | - | - | - | - | - |
| 20071028 | 34 | flood | 6.2 | - | - | - | - | - | - | - | - |
| 20071028 | 34 | ebb | 6.1 | - | - | - | - | - | - | - | - |
| 20071028 | 35 | flood | 6 | - | - | - | - | - | - | - | - |
| 20071028 | 35 | ebb | 5.9 | - | - | - | - | - | - | - | - |
| 20071029 | 36 | flood | 6.1 | - | - | - | - | - | - | - | - |
| 20071029 | 36 | ebb | 5.8 | - | - | - | - | - | - | - | - |
| 20071029 | 37 | flood | 6 | - | - | - | - | - | - | - | - |
| 20071030 | 37 | ebb | 5.9 | - | - | - | - | - | - | - | - |
| 20071030 | 38 | flood | 5.6 | - | - | - | - | - | - | - | - |
| 20071030 | 38 | ebb | 5.6 | - | - | - | - | - | - | - | - |
| 20071030 | 39 | flood | 5.6 | - | - | - | - | - | - | - | - |
| 20071031 | 39 | ebb | 5.7 | - | - | - | - | - | - | - | - |
| 20071031 | 40 | flood | 5.1 | - | - | - | - | - | - | - | - |
| 20071031 | 40 | ebb | 5.3 | 0.1 | 68.6 | 0.2 | 64.3 | 23.3 | 21.3 | - | 3.4 |
| 20071031 | 41 | flood | 5.4 | 0.2 | 177 | 0.2 | 181.1 | 93.2 | 181.4 | 23.1 | 41 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071101 | 41 | ebb | 4.9 | 0.2 | 133.7 | 0.1 | 171.5 | 59.8 | 119.7 | 14 | 19.8 |
| 20071101 | 42 | flood | 4.6 | 0.2 | 183.8 | 0.1 | 172.9 | 93.1 | 366.1 | 19.7 | 68 |
| 20071101 | 42 | ebb | 4.8 | 0.2 | 120.8 | 0.1 | 156 | 51.1 | 101.5 | 10.5 | 19.3 |
| 20071101 | 43 | flood | 5 | 0.2 | 204.4 | 0.2 | 200.3 | 94.4 | 219.4 | 23.4 | 45.1 |
| 20071102 | 43 | ebb | 4.6 | 0.2 | 132 | 0.1 | 158.5 | 55 | 115.9 | 11 | 20.2 |
| 20071102 | 44 | flood | 4.1 | 0.2 | 153.2 | 0.1 | 175.5 | 56.4 | 119.9 | 11 | 18.1 |
| 20071102 | 44 | ebb | 4.4 | 0.2 | 126.2 | 0.1 | 168.6 | 43.9 | 84.4 | 8.3 | 13.3 |
| 20071102 | 45 | flood | 4.6 | 0.2 | 178.3 | 0.1 | 184 | 78.8 | 171.6 | 18.9 | 31 |
| 20071103 | 45 | ebb | 4.1 | 0.2 | 135.4 | 0.1 | 170.1 | 41.5 | 148.1 | 8.4 | 21.3 |
| 20071103 | 46 | flood | 3.8 | 0.2 | 150.8 | 0.1 | 158.7 | 51.6 | 73.5 | 9.9 | 10.9 |
| 20071103 | 46 | ebb | 4 | 0.2 | 135.6 | 0.1 | 143.9 | 34.6 | 52.7 | 6.4 | 7.5 |
| 20071103 | 47 | flood | 4.4 | 0.2 | 177 | 0.1 | 187.1 | 50.4 | 162.2 | 10.9 | 28.2 |
| 20071104 | 47 | ebb | 4.3 | 0.2 | 109.4 | 0.1 | 129.5 | 42.7 | 69.2 | 8 | 10.5 |
| 20071104 | 48 | flood | 3.7 | 0.2 | 137.3 | 0.1 | 160.5 | 36.1 | 43.8 | 5.4 | 5 |
| 20071104 | 48 | ebb | 4.3 | 0.2 | 108 | 0.1 | 156.2 | 41.7 | 64.3 | 7.3 | 9 |
| 20071105 | 49 | flood | 4.7 | 0.2 | 183.5 | 0.1 | 187.7 | 48.4 | 69.9 | 10.5 | 11.6 |
| 20071105 | 49 | ebb | 4.4 | 0.2 | 119.1 | 0.1 | 167.4 | 32.6 | 66.4 | 6.6 | 10.8 |
| 20071105 | 50 | flood | 4.2 | 0.2 | 135.8 | 0.1 | 145.9 | 104.3 | 477.1 | 21.2 | 57.8 |
| 20071105 | 50 | ebb | 4.5 | 0.1 | 142.6 | 0.1 | 176.4 | 133.7 | 627.5 | 12.6 | 39.1 |
| 20071106 | 51 | flood | 5.5 | 0.2 | 192.4 | 0.1 | 222.6 | 90 | 191.1 | 21.7 | 26.1 |
| 20071106 | 51 | ebb | 4.4 | 0.2 | 124.4 | 0.1 | 171.7 | 52.5 | 110.4 | 11.4 | 14.6 |
| 20071106 | 52 | flood | 4.5 | 0.2 | 169.9 | 0.1 | 178.7 | 77.2 | 189.4 | 14.4 | 24.6 |
| 20071106 | 52 | ebb | 5.2 | 0.1 | 85.7 | 0.1 | 147.3 | 47.5 | 82.3 | 8.2 | 9.1 |
| 20071107 | 53 | flood | 4.6 | 0.2 | 173.5 | 0.1 | 161.6 | 66.8 | 147.6 | 13.7 | 22.9 |
| 20071107 | 53 | ebb | 4.7 | 0.2 | 150.6 | 0.1 | 190.4 | 41.3 | 80.7 | 8.5 | 11.2 |
| 20071107 | 54 | flood | 5.4 | 0.2 | 191.2 | 0.1 | 205.2 | 89.8 | 256.4 | 20.6 | 34.6 |
| 20071107 | 54 | ebb | 5.1 | 0.2 | 131 | 0.1 | 165.8 | 47.9 | 86.8 | 10.1 | 12.5 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071108 | 55 | flood | 5 | 0.2 | 146.2 | 0.1 | 149.9 | 56.3 | 109.3 | 11.1 | 19.4 |
| 20071108 | 55 | ebb | 5.4 | 0.1 | 167.3 | 0.1 | 181.4 | 61.3 | 134.3 | 9.9 | 11.2 |
| 20071108 | 56 | flood | 4.9 | 0.2 | 183.6 | 0.1 | 191.9 | 97.8 | 300.2 | 21.6 | 40.8 |
| 20071108 | 56 | ebb | 4.9 | 0.2 | 130.9 | 0.1 | 144.6 | 42.2 | 106.4 | 8.8 | 13.8 |
| 20071109 | 57 | flood | 6.6 | 0.2 | 182.9 | 0.1 | 186.8 | 98.1 | 323.6 | 23.8 | 48.3 |
| 20071109 | 57 | ebb | 4.4 | 0.2 | 129.4 | 0.1 | 170.2 | 57.2 | 143.8 | 11.4 | 13.1 |
| 20071109 | 58 | flood | 4 | 0.1 | 129.5 | 0.1 | 168.9 | 55.3 | 131.8 | 6.6 | 7 |
| 20071109 | 58 | ebb | 5.5 | 0.2 | 137.4 | 0.1 | 175.3 | 40.8 | 128.5 | 7.7 | 13 |
| 20071110 | 59 | flood | 4.7 | 0.2 | 107.8 | 0.1 | 131.9 | 58.3 | 162 | 13.4 | 21.4 |
| 20071110 | 59 | ebb | 5.1 | 0.2 | 125.7 | 0.1 | 174.1 | 55 | 216.3 | 13.5 | 33.6 |
| 20071110 | 60 | flood | 5.2 | 0.2 | 95.5 | 0.1 | 100.6 | 63.1 | 264.7 | 17.9 | 57 |
| 20071110 | 60 | ebb | 5.4 | 0.2 | 131.5 | 0.1 | 204.7 | 68.2 | 226.5 | 14.7 | 26.8 |
| 20071111 | 61 | flood | 5.4 | 0.2 | 160.9 | 0.1 | 170.2 | 129.6 | 549.8 | 28.9 | 68.9 |
| 20071111 | 61 | ebb | 4.9 | 0.2 | 170.5 | 0.1 | 194.3 | 146.8 | 1373.3 | 22.6 | 59.7 |
| 20071111 | 62 | flood | 5.1 | 0.2 | 164.2 | 0.1 | 173.9 | 73.8 | 1058.9 | 15 | 72 |
| 20071111 | 62 | ebb | 5.5 | 0.2 | 140.3 | 0.1 | 164.3 | 42.1 | 613.2 | 8.9 | 51.5 |
| 20071112 | 63 | flood | 5.2 | 0.2 | 139.6 | 0.1 | 155.9 | 54.7 | 903.4 | 12.5 | 66.9 |
| 20071112 | 63 | ebb | 5.5 | 0.2 | 134.1 | 0.1 | 158.2 | 44.6 | 239.5 | 10.2 | 29.1 |
| 20071112 | 64 | flood | 5.3 | 0.2 | 164.2 | 0.1 | 198.4 | 68 | 278.5 | 17.3 | 27.7 |
| 20071112 | 64 | ebb | 5.6 | 0.2 | 140 | 0.1 | 163.3 | 64.2 | 287.8 | 15.3 | 32.4 |
| 20071113 | 65 | flood | 5.3 | 0.2 | 166 | 0.1 | 172.5 | 65.6 | 207 | 15.5 | 26.8 |
| 20071113 | 65 | ebb | 5.5 | 0.1 | 114.6 | 0.1 | 196 | 47.7 | 237.4 | 8.2 | 18.4 |
| 20071113 | 66 | flood | 5.7 | 0.2 | 181.7 | 0.1 | 185.7 | 107 | 500.1 | 27.5 | 68.5 |
| 20071113 | 66 | ebb | 4.9 | 0.2 | 134.9 | 0.1 | 165.8 | 56.6 | 444.6 | 12.4 | 40.8 |
| 20071114 | 67 | flood | 4.6 | 0.2 | 122.4 | 0.1 | 153.2 | 51 | 414.3 | 10.9 | 41.8 |
| 20071114 | 67 | ebb | 5.2 | 0.1 | 179.8 | 0.1 | 195 | 57.3 | 444.9 | 10.9 | 41.3 |
| 20071114 | 68 | flood | 4.7 | 0.2 | 185.3 | 0.1 | 125.9 | 90.2 | 229 | 19.6 | 26.7 |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071115 | 68 | ebb | 5 | 0.2 | 123.6 | 0.1 | 123.4 | 54.6 | 125.7 | 11.9 | 13.2 |
| 20071115 | 69 | flood | 4.9 | 0.2 | 177 | 0.1 | 145.2 | 157.5 | 34.8 | 35.8 | -54.8 |
| 20071115 | 69 | ebb | 5.1 | 0.2 | 115.8 | - | - | 55.7 | - | 12.6 | -47.2 |
| 20071115 | 70 | flood | 5.1 | 0.2 | 184.7 | - | - | 100.5 | - | 23.2 | -55.9 |
| 20071116 | 70 | ebb | 4.7 | 0.2 | 130 | - | - | 60.9 | - | 13.6 | -47.4 |
| 20071116 | 71 | flood | 4.6 | 0.2 | 175.5 | - | - | 88.5 | - | 19 | -49.7 |
| 20071116 | 71 | ebb | 4.8 | 0.2 | 122 | - | - | 53 | - | 11.9 | -45.4 |
| 20071116 | 72 | flood | 4.8 | 0.2 | 186.9 | - | - | 87.9 | - | 20.7 | -48 |
| 20071117 | 72 | ebb | 4.5 | 0.2 | 122.6 | - | - | 61 | - | 12.1 | -46.3 |
| 20071117 | 73 | flood | 4.2 | 0.2 | 184.1 | - | - | 74.7 | - | 15.6 | -47.5 |
| 20071117 | 73 | ebb | 4.4 | 0.2 | 120.9 | - | - | 45.5 | - | 9.9 | -45.2 |
| 20071117 | 74 | flood | 4.5 | 0.2 | 171.6 | - | - | 86.9 | - | 16.6 | -45.4 |
| 20071118 | 74 | ebb | 4.2 | 0.2 | 127.9 | - | - | 52.7 | - | 11.9 | -45.1 |
| 20071118 | 75 | flood | 3.8 | 0.2 | 164 | - | - | 53.3 | - | 9.6 | -46.9 |
| 20071118 | 75 | ebb | 4.2 | 0.2 | 110.8 | - | - | 47.6 | - | 10.2 | -48 |
| 20071118 | 76 | flood | 4 | 0.2 | 157 | - | - | 94.5 | - | 19.6 | -52.5 |
| 20071119 | 76 | ebb | 3.7 | 0.2 | 121.6 | - | - | 41.2 | - | 8.6 | -52.9 |
| 20071119 | 77 | flood | 3.9 | 0.2 | 161.3 | - | - | 53.6 | - | 10.5 | -55.9 |
| 20071119 | 77 | ebb | 4.2 | 0.2 | 115.6 | - | - | 79.5 | - | 16.1 | -48.1 |
| 20071119 | 78 | flood | 4.4 | 0.2 | 179.3 | - | - | 93.5 | - | 19.2 | -48.3 |
| 20071120 | 78 | ebb | 4.1 | 0.2 | 127.5 | - | - | 83 | - | 14.6 | 7.2 |
| 20071120 | 79 | flood | 4.2 | 0.2 | 167 | - | - | 149.2 | - | 32.5 | 54.9 |
| 20071120 | 79 | ebb | 4.7 | 0.2 | 115.9 | - | - | 61.5 | - | 12.1 | 33.9 |
| 20071120 | 80 | flood | 5 | 0.2 | 178.2 | - | - | 181.7 | - | 37.3 | 82.2 |
| 20071121 | 80 | ebb | 4.6 | 0.2 | 133.9 | - | - | 107.7 | - | 20.4 | 42.6 |
| 20071121 | 81 | flood | 4.8 | 0.2 | 204.2 | - | - | 203.1 | - | 38.8 | 75.5 |
| 20071121 | 81 | ebb | 5.1 | 0.2 | 132.9 | - | - | 142.6 | - | 25.4 | 37.4 |

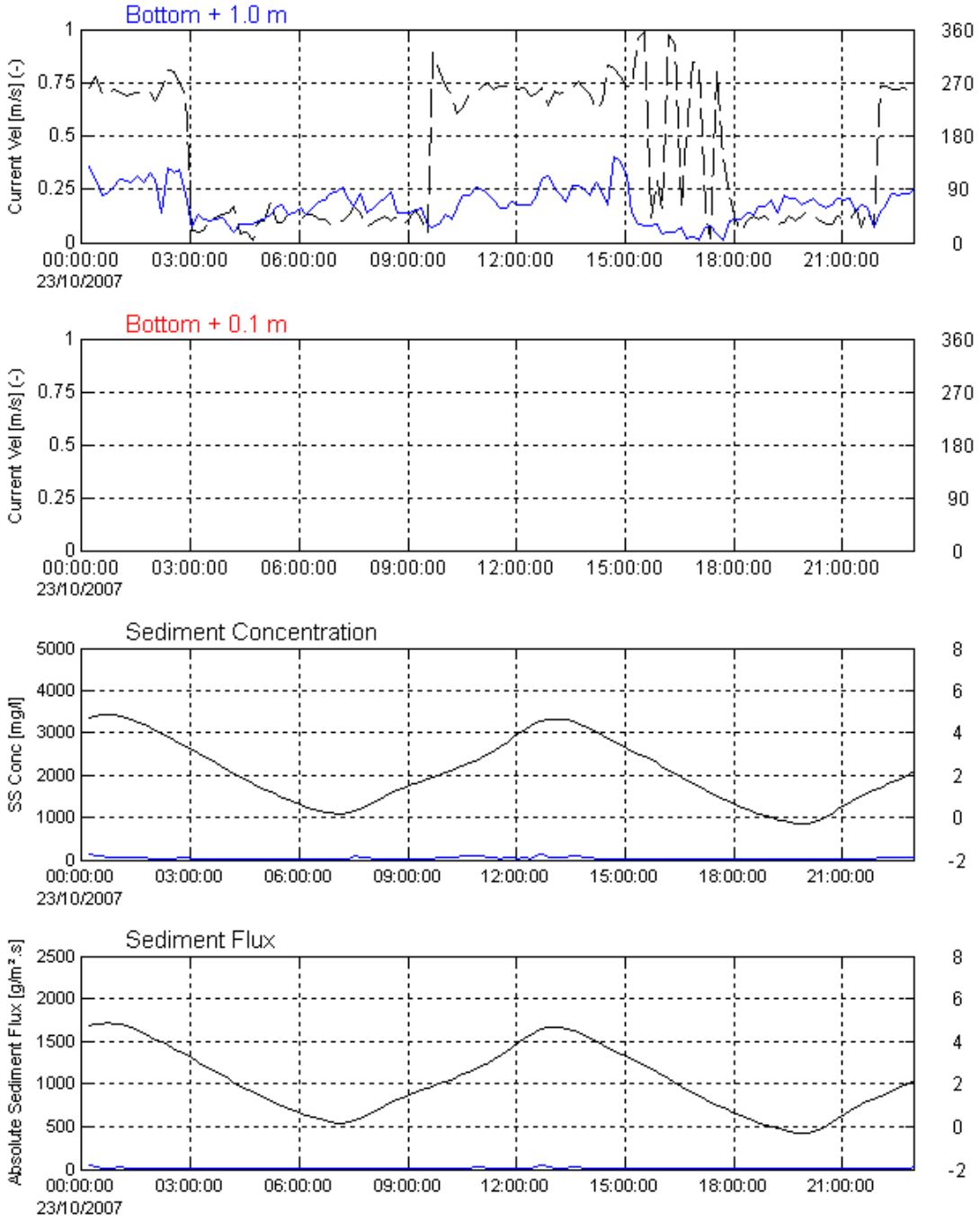
# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071122 | 82 | flood | 5.4 | 0.2 | 181.1 | - | - | 319.8 | - | 65 | - |
| 20071122 | 82 | ebb | 5.2 | 0.2 | 119.3 | - | - | 96.7 | - | 20.9 | - |
| 20071122 | 83 | flood | 5.2 | 0.2 | 179.5 | - | - | 282.1 | - | 62.5 | - |
| 20071122 | 83 | ebb | 5.5 | 0.2 | 119.8 | - | - | 204.6 | - | 33.4 | - |
| 20071123 | 84 | flood | 6 | 0.2 | 188.4 | - | - | 436.6 | - | 111 | - |
| 20071123 | 84 | ebb | 4.9 | 0.2 | 145.4 | - | - | 140.6 | - | 29.4 | - |
| 20071123 | 85 | flood | 5 | 0.2 | 182.1 | - | - | 304.9 | - | 49.1 | -36.5 |
| 20071123 | 85 | ebb | 6 | 0.2 | 121.1 | - | - | 228.1 | - | 45.1 | -33.9 |
| 20071124 | 86 | flood | 5.8 | 0.2 | 198.4 | - | - | 518.4 | - | 115.2 | -13.5 |
| 20071124 | 86 | ebb | 6 | 0.2 | 134 | - | - | 241 | - | 58.6 | -12 |
| 20071124 | 87 | flood | 5.7 | 0.2 | 178.1 | - | - | 366.8 | - | 90.6 | -15.3 |
| 20071124 | 87 | ebb | 5.7 | 0.2 | 142 | - | - | 157.1 | - | 38.8 | -16.8 |
| 20071125 | 88 | flood | 6.4 | 0.2 | 191.7 | - | - | 430.6 | - | 114.8 | -11.8 |
| 20071125 | 88 | ebb | 5.4 | 0.2 | 125.5 | - | - | 136.5 | - | 31.8 | -13.3 |
| 20071125 | 89 | flood | 5.9 | 0.2 | 192.1 | - | - | 354 | - | 75 | -14 |
| 20071125 | 89 | ebb | 6 | 0.2 | 132.7 | - | - | 122.8 | - | 28.2 | -18.1 |
| 20071126 | 90 | flood | 5.5 | 0.2 | 177.2 | - | - | 200.5 | - | 53 | -30.9 |
| 20071126 | 90 | ebb | 6 | 0.2 | 127.7 | - | - | 156.9 | - | 40.2 | -21.7 |
| 20071126 | 91 | flood | 5.8 | 0.2 | 185.4 | - | - | 256.6 | - | 60.7 | -20 |
| 20071126 | 91 | ebb | 6 | 0.2 | 134.4 | - | - | 146.5 | - | 32.6 | -21.4 |
| 20071127 | 92 | flood | 5.7 | 0.2 | 174.6 | - | - | 254.9 | - | 57.7 | -21.2 |
| 20071127 | 92 | ebb | 6.1 | 0.2 | 124.4 | - | - | 126.1 | - | 30.6 | -21.6 |
| 20071127 | 93 | flood | 6 | 0.2 | 194.6 | - | - | 421.5 | - | 93.2 | -20.3 |
| 20071128 | 93 | ebb | 5.9 | 0.2 | 138.6 | - | - | 151.6 | - | 33.8 | -21.2 |
| 20071128 | 94 | flood | 5.6 | 0.2 | 186.6 | - | - | 389.9 | - | 93.1 | -21.5 |
| 20071122 | 83 | ebb | 5.5 | 0.2 | 119.8 | - | - | 204.6 | - | 33.4 | - |
| 20071123 | 84 | flood | 6 | 0.2 | 188.4 | - | - | 436.6 | - | 111 | - |

# RCM9 & VALEPORT AVERAGES FOR EVERY TIDAL PHASE

| Date | Tide no. | Phase | Tidal Diff | UP Velocity (RCM9) Bottom +1.0m | | DOWN Velocity (Valeport) Bottom +0.1m | | SS Concentration [mg/l] | | SS Flux [g/m²s] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | [m] | Magnitude [m/s] | Direction [°] | Magnitude [m/s] | Direction [°] | UP (RCM9) | DOWN (Valeport) | UP (RCM9) | DOWN (Valeport) |
| 20071123 | 84 | ebb | 4.9 | 0.2 | 145.4 | - | - | 140.6 | - | 29.4 | - |
| 20071123 | 85 | flood | 5 | 0.2 | 182.1 | - | - | 304.9 | - | 49.1 | -36.5 |
| 20071123 | 85 | ebb | 6 | 0.2 | 121.1 | - | - | 228.1 | - | 45.1 | -33.9 |
| 20071124 | 86 | flood | 5.8 | 0.2 | 198.4 | - | - | 518.4 | - | 115.2 | -13.5 |
| 20071124 | 86 | ebb | 6 | 0.2 | 134 | - | - | 241 | - | 58.6 | -12 |
| 20071124 | 87 | flood | 5.7 | 0.2 | 178.1 | - | - | 366.8 | - | 90.6 | -15.3 |
| 20071124 | 87 | ebb | 5.7 | 0.2 | 142 | - | - | 157.1 | - | 38.8 | -16.8 |
| 20071125 | 88 | flood | 6.4 | 0.2 | 191.7 | - | - | 430.6 | - | 114.8 | -11.8 |
| 20071125 | 88 | ebb | 5.4 | 0.2 | 125.5 | - | - | 136.5 | - | 31.8 | -13.3 |
| 20071125 | 89 | flood | 5.9 | 0.2 | 192.1 | - | - | 354 | - | 75 | -14 |
| 20071125 | 89 | ebb | 6 | 0.2 | 132.7 | - | - | 122.8 | - | 28.2 | -18.1 |
| 20071126 | 90 | flood | 5.5 | 0.2 | 177.2 | - | - | 200.5 | - | 53 | -30.9 |
| 20071126 | 90 | ebb | 6 | 0.2 | 127.7 | - | - | 156.9 | - | 40.2 | -21.7 |
| 20071126 | 91 | flood | 5.8 | 0.2 | 185.4 | - | - | 256.6 | - | 60.7 | -20 |
| 20071126 | 91 | ebb | 6 | 0.2 | 134.4 | - | - | 146.5 | - | 32.6 | -21.4 |
| 20071127 | 92 | flood | 5.7 | 0.2 | 174.6 | - | - | 254.9 | - | 57.7 | -21.2 |
| 20071127 | 92 | ebb | 6.1 | 0.2 | 124.4 | - | - | 126.1 | - | 30.6 | -21.6 |
| 20071127 | 93 | flood | 6 | 0.2 | 194.6 | - | - | 421.5 | - | 93.2 | -20.3 |
| 20071128 | 93 | ebb | 5.9 | 0.2 | 138.6 | - | - | 151.6 | - | 33.8 | -21.2 |
| 20071128 | 94 | flood | 5.6 | 0.2 | 186.6 | - | - | 389.9 | - | 93.1 | -21.5 |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




| Current Velocity and Direction upper (RCM9) and lower (Valeport) EMC, OBS SS Conc. & flux and waterlevel | | Data processed by: IMDC |
|---|---|---|
| Location: Deurganckdok Sill | Date: Avg Tide 23/10– 24/10 | In association with: WL \| delft hydraulics, GEMS International |
| | | I/RA/11283/07.093/MSA |

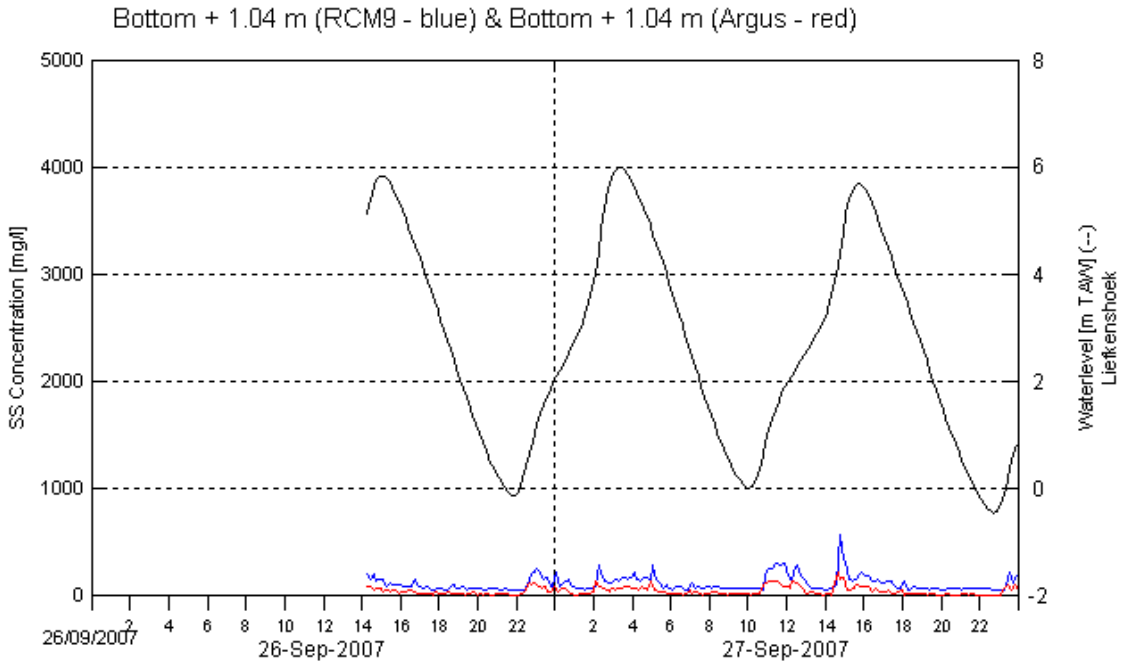
# APPENDIX E.

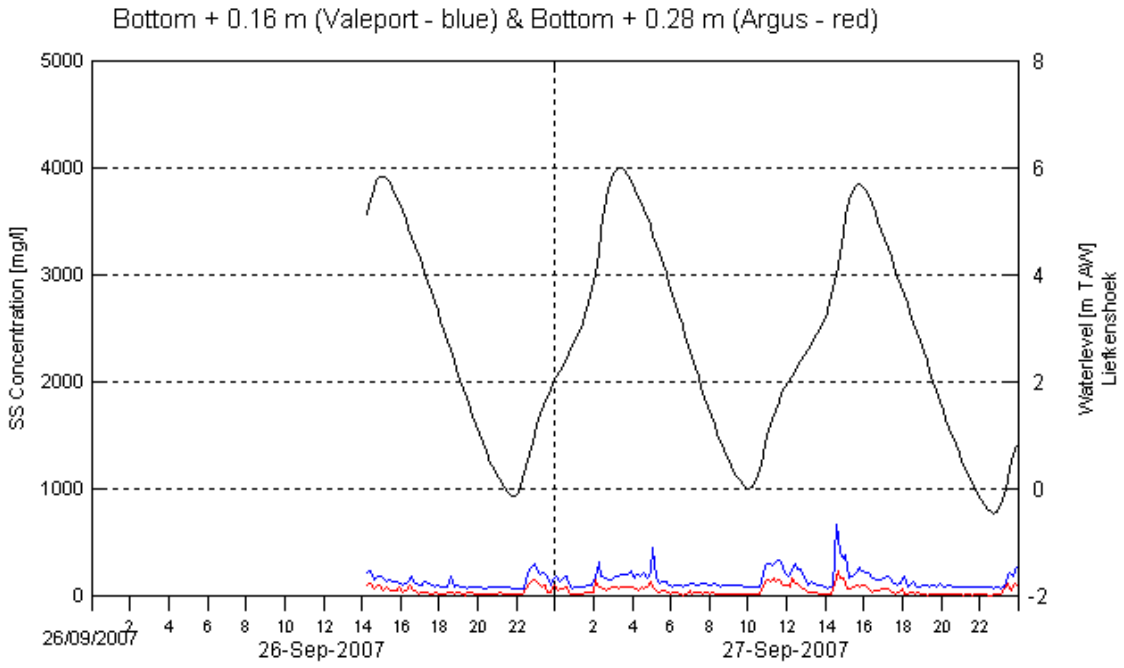
# COMPARISON OF RCM9 & VALEPORT SENSORS

# TO ARGUS SENSORS

# E.1 CDW Frame

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok CDW

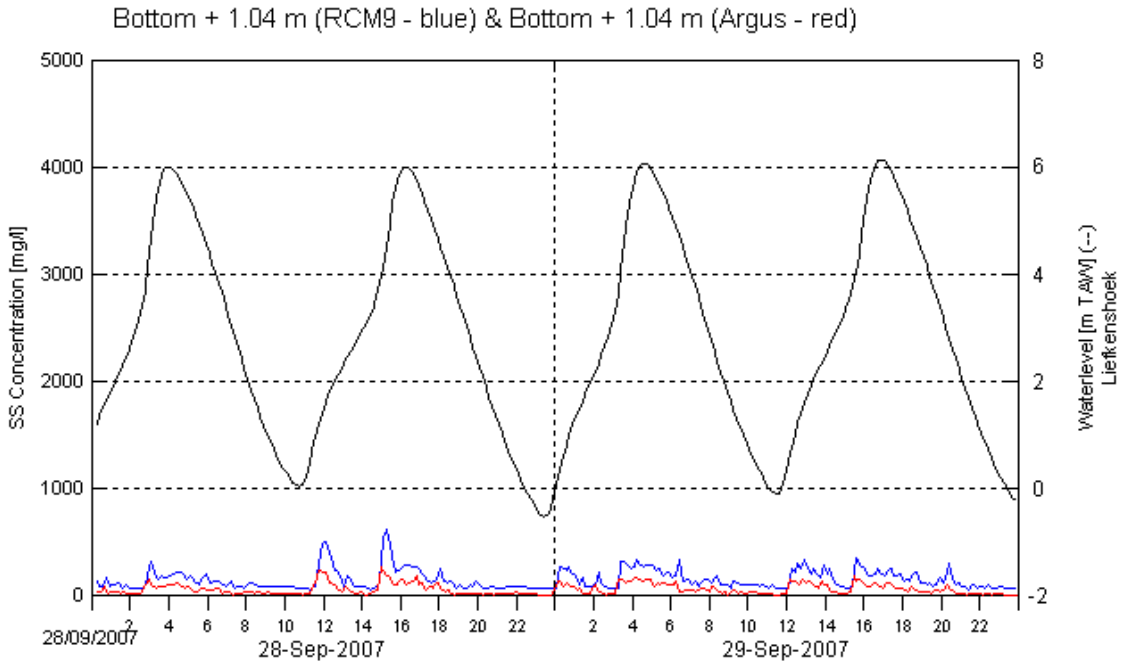
Date: 26/09/07 – 27/09/07

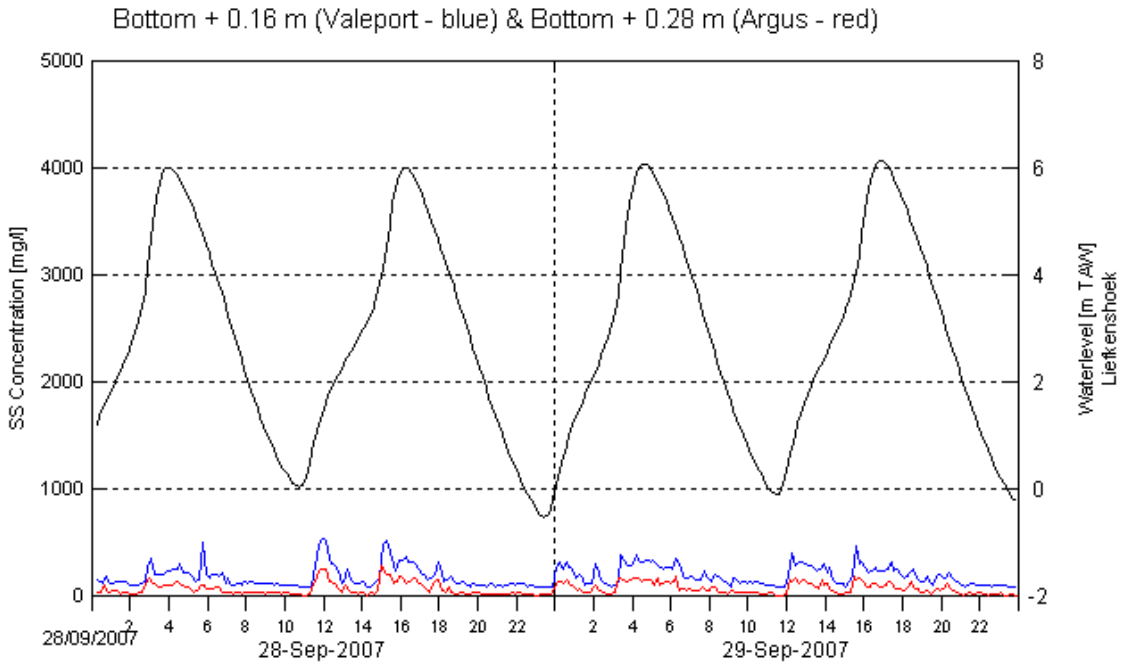
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

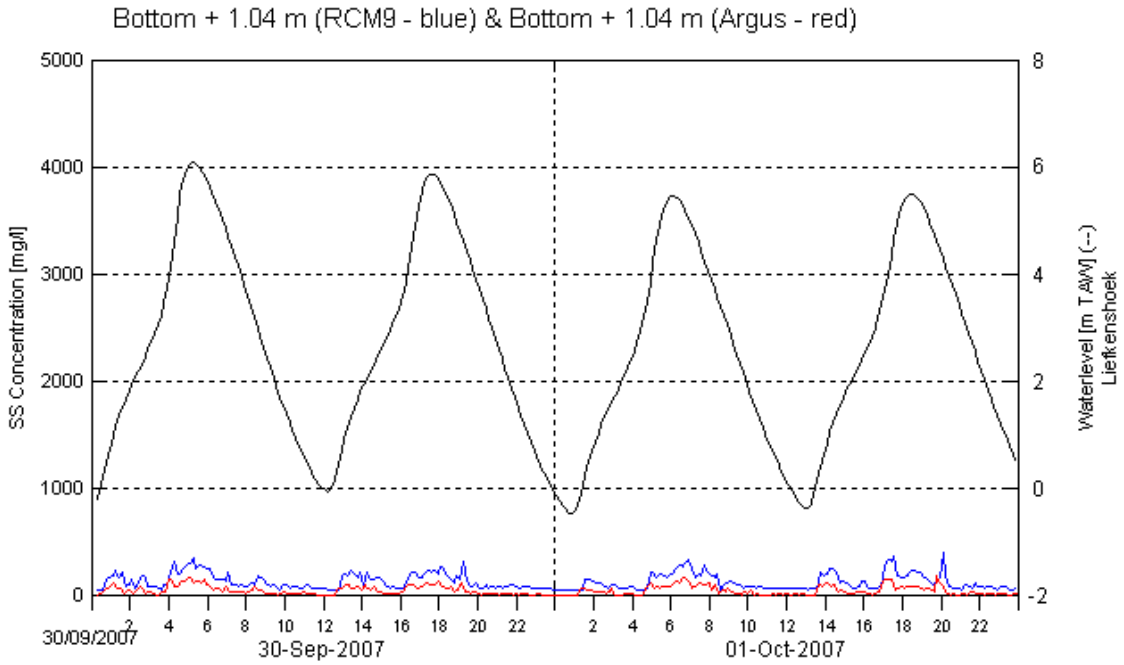
| Location: | Date: |
|---|---|
| Deurganckdok Sill | 28/09/07 – 29/09/07 |

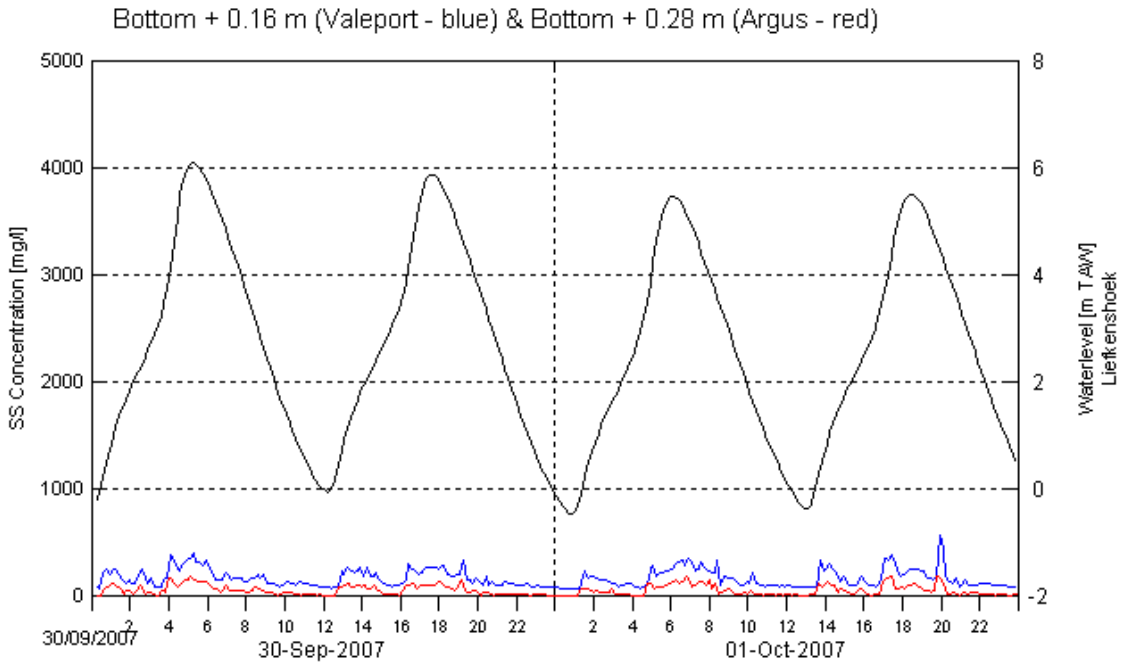
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

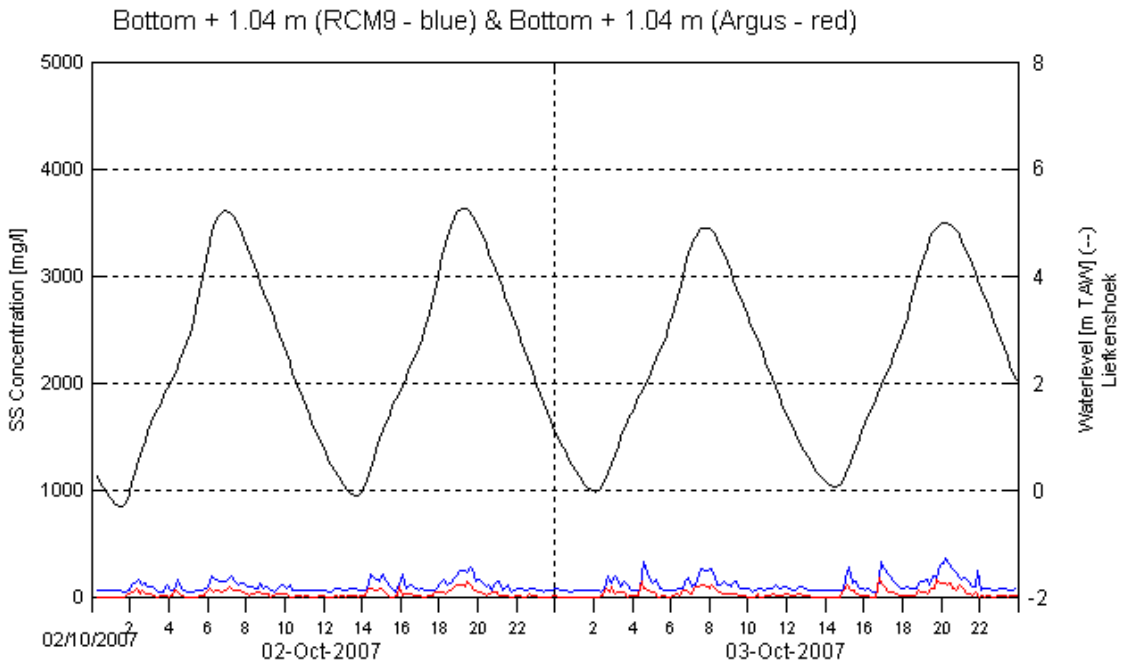
Date: 30/09/07 – 01/10/07

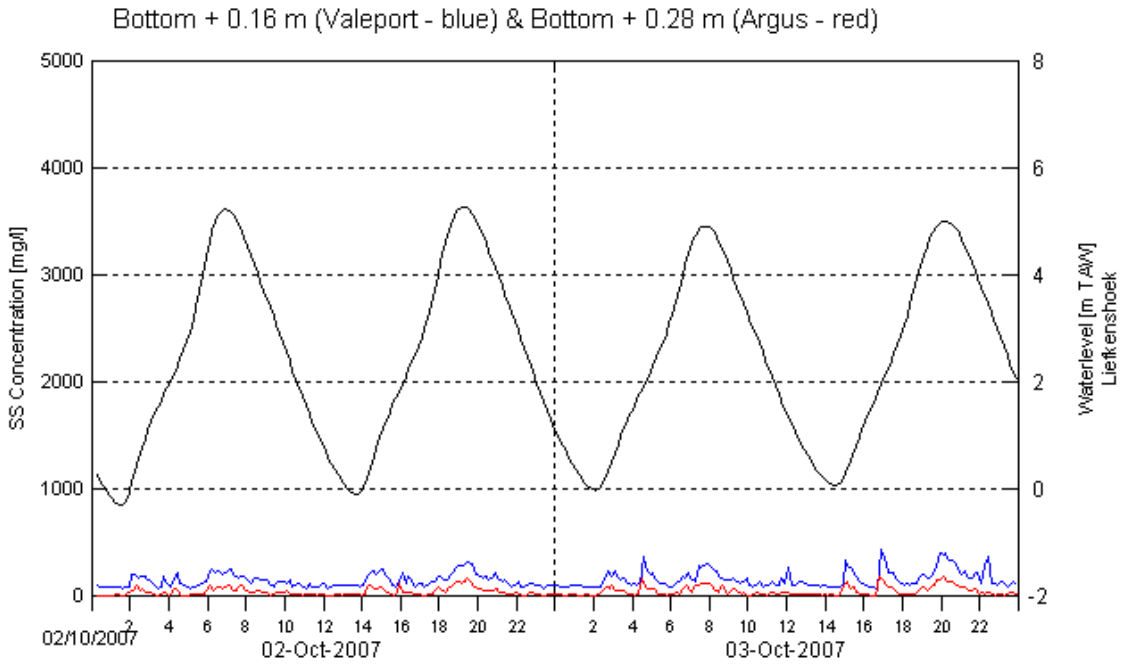
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

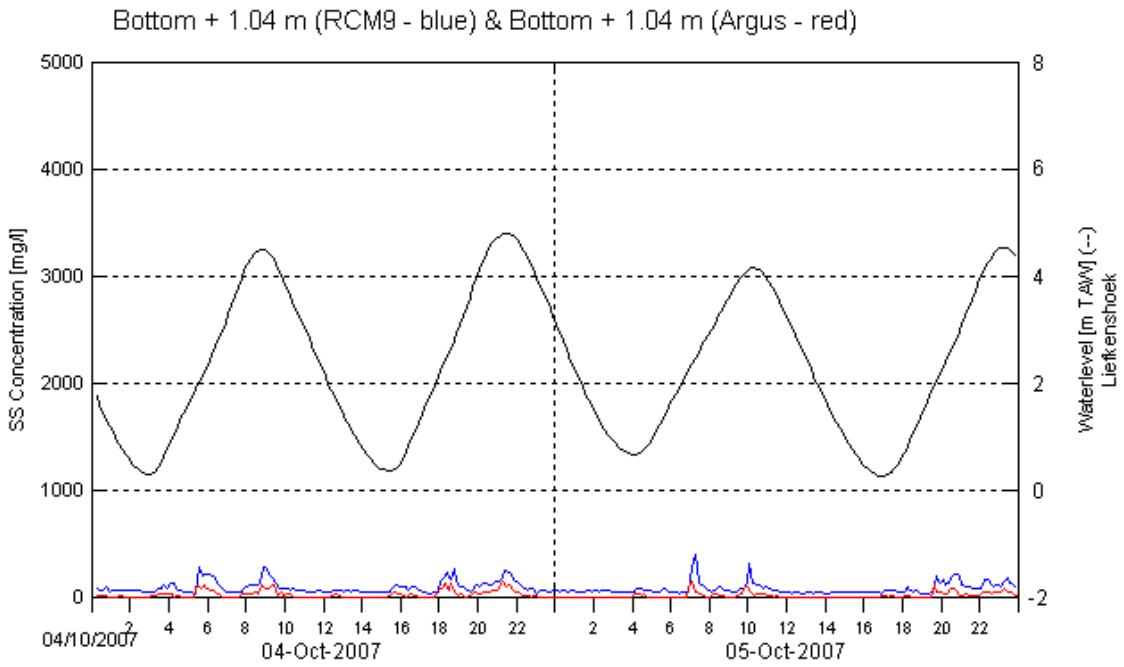
Date: 02/10/07 – 03/10/07

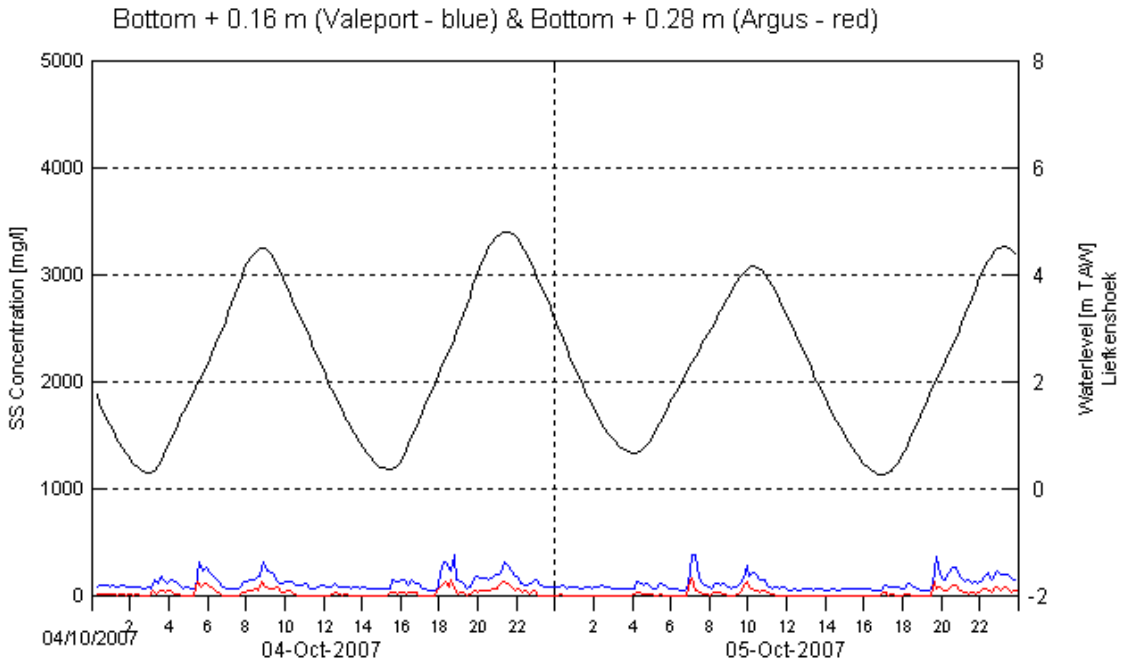
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

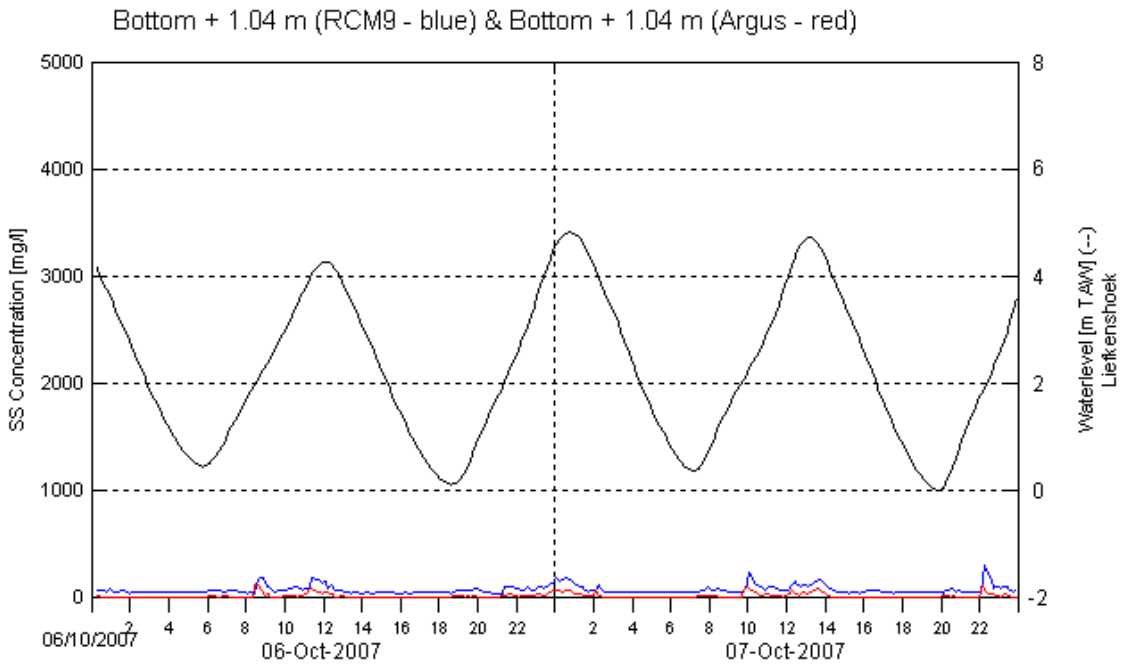
Date: 04/10/07 – 05/10/07

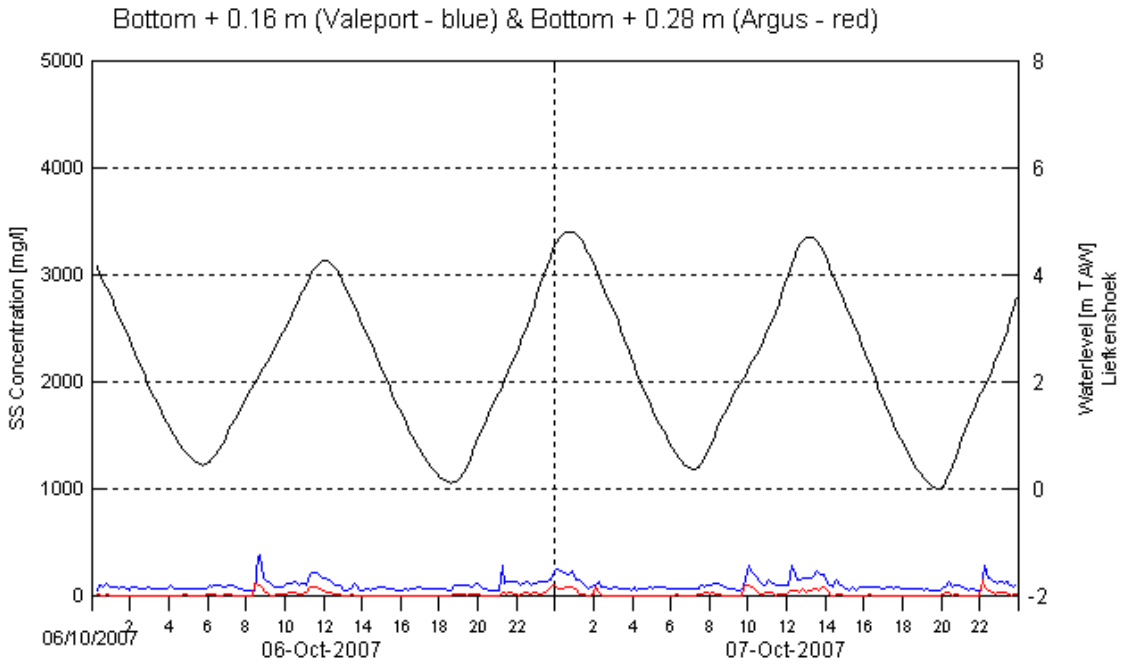
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

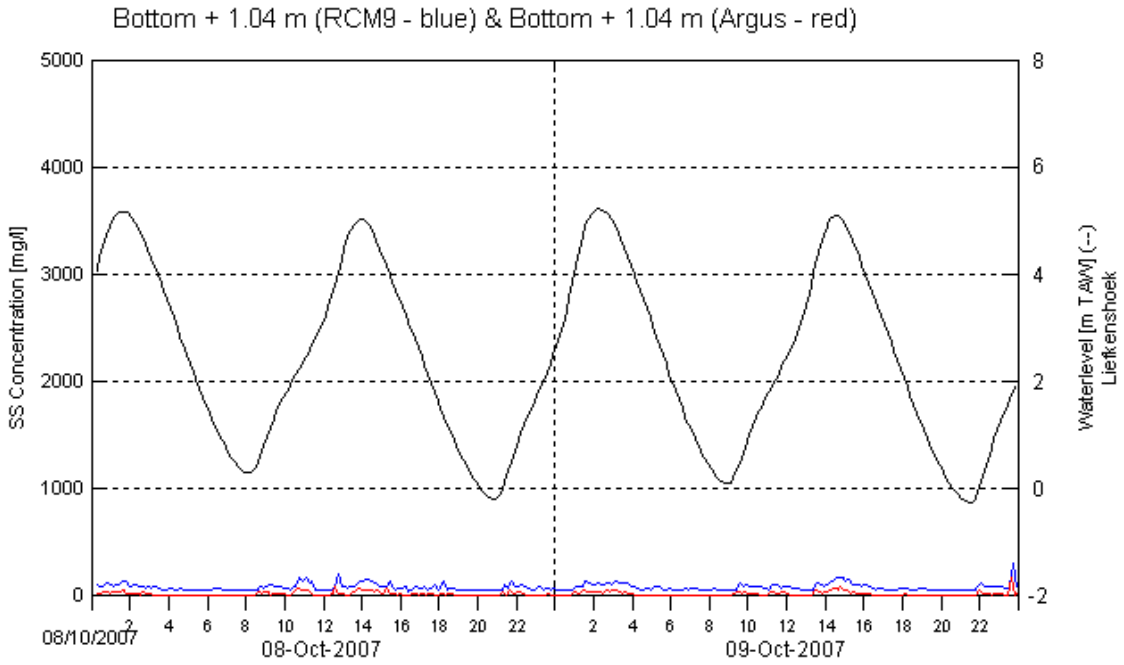
Date: 06/10/07 – 07/10/07

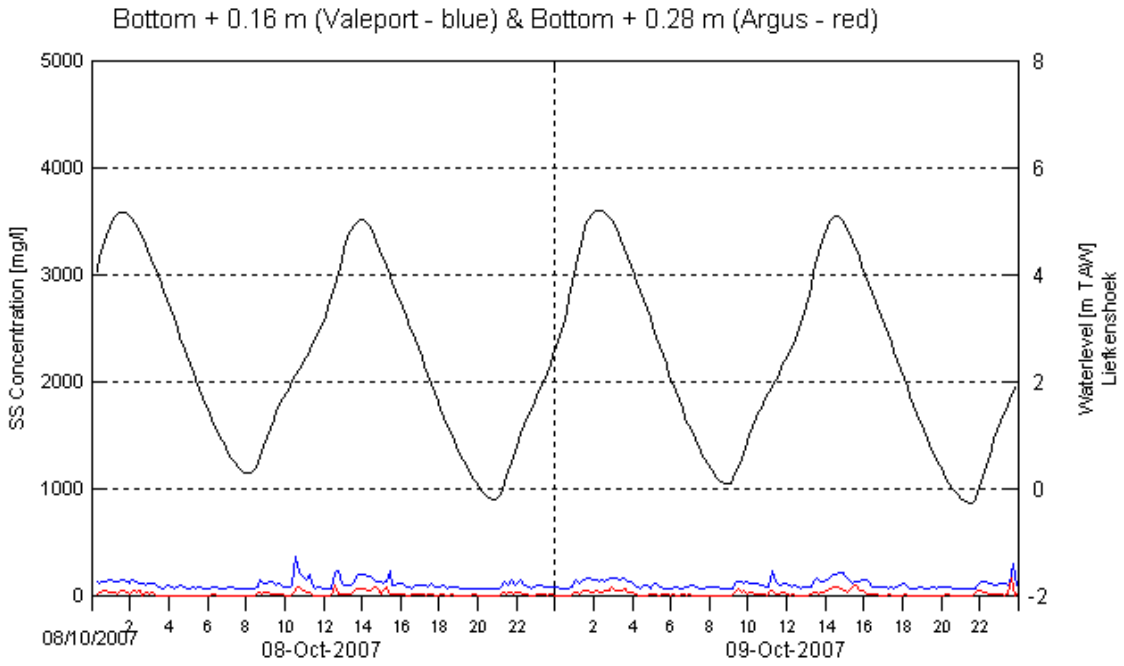
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

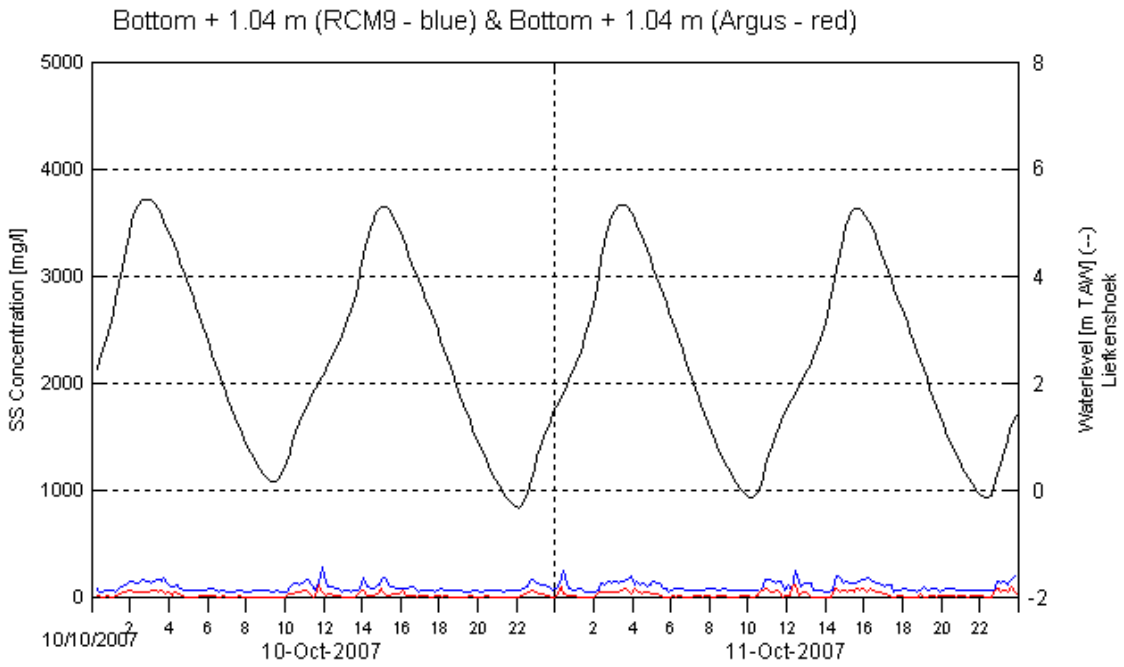
Date: 08/10/07 – 09/10/07

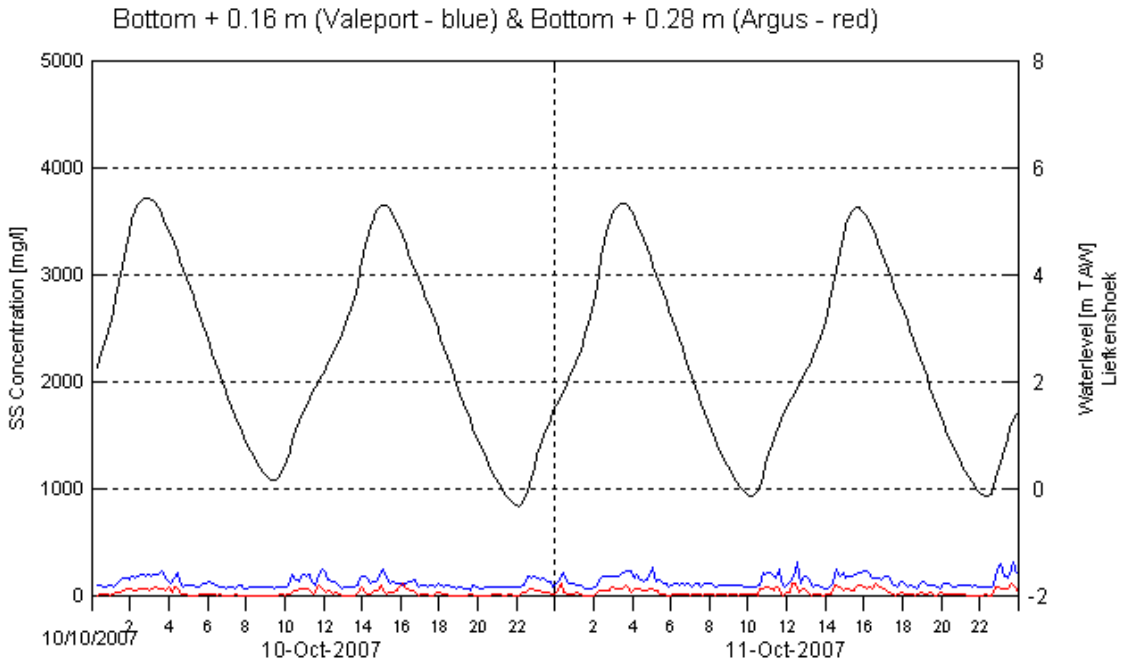
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

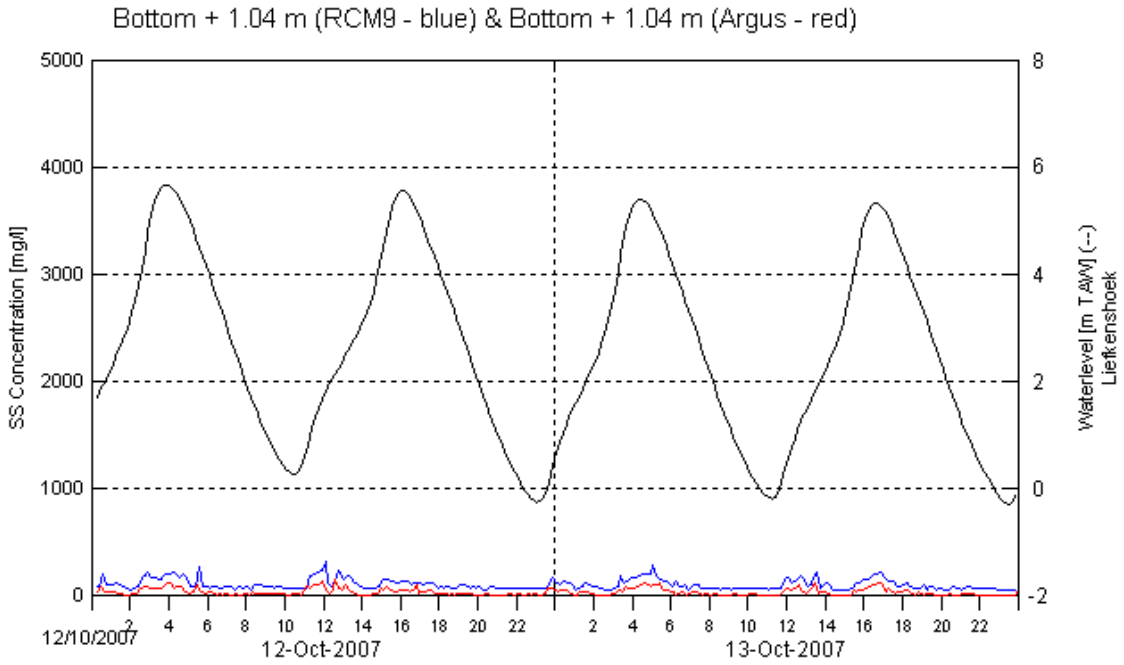
Date: 10/10/07 – 11/10/07

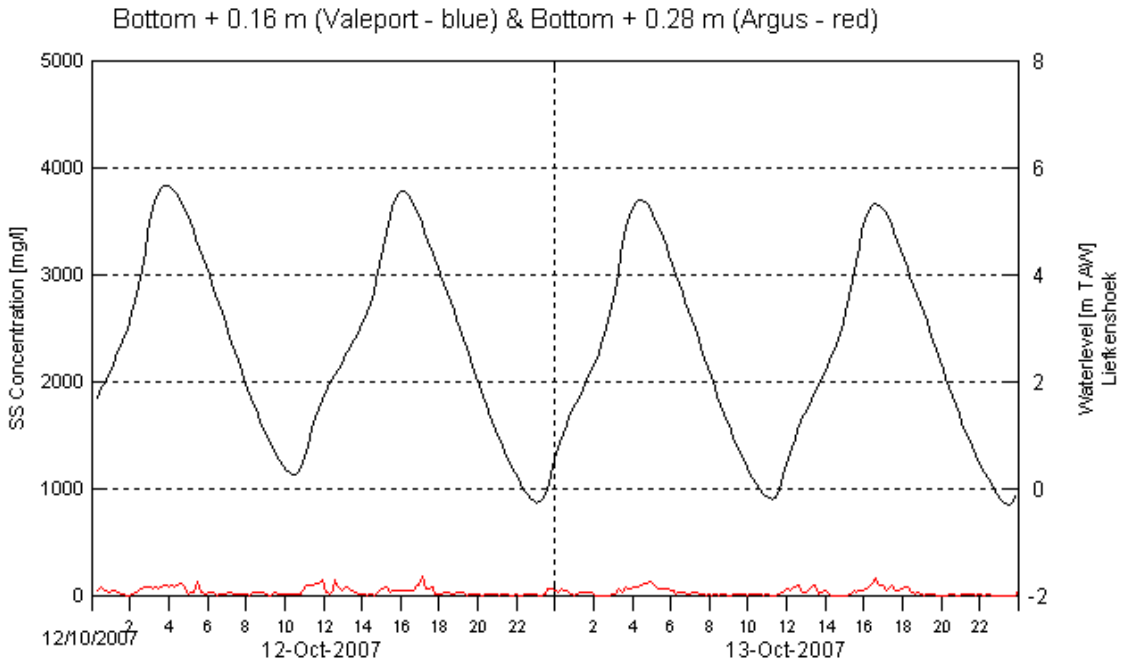
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

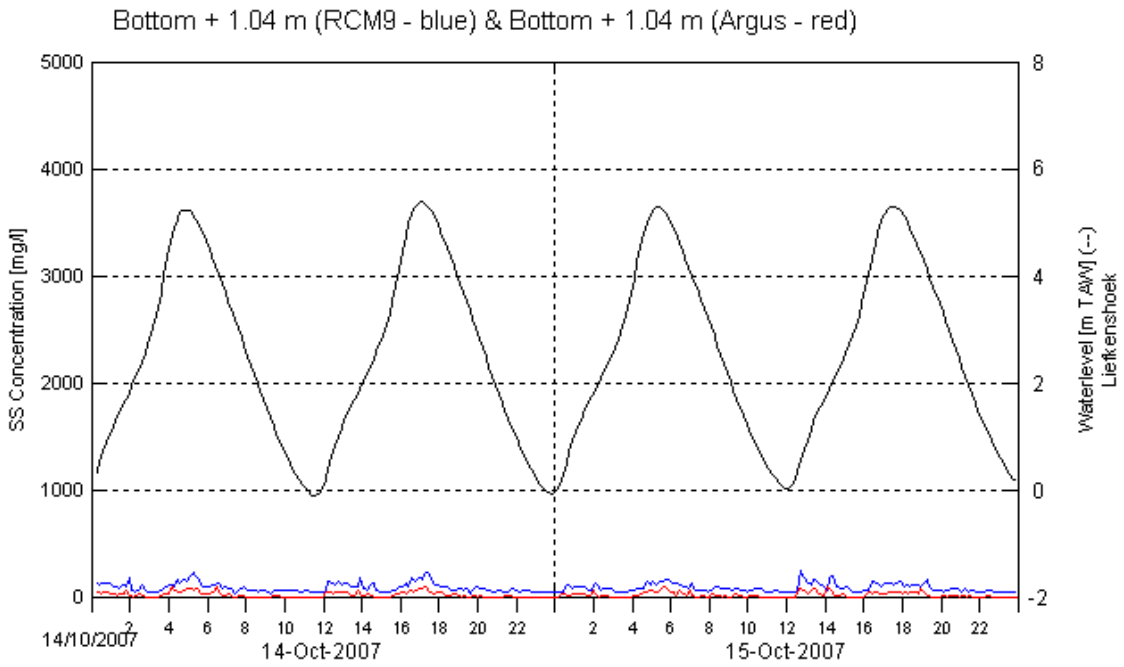
Date: 12/10/07 – 13/10/07

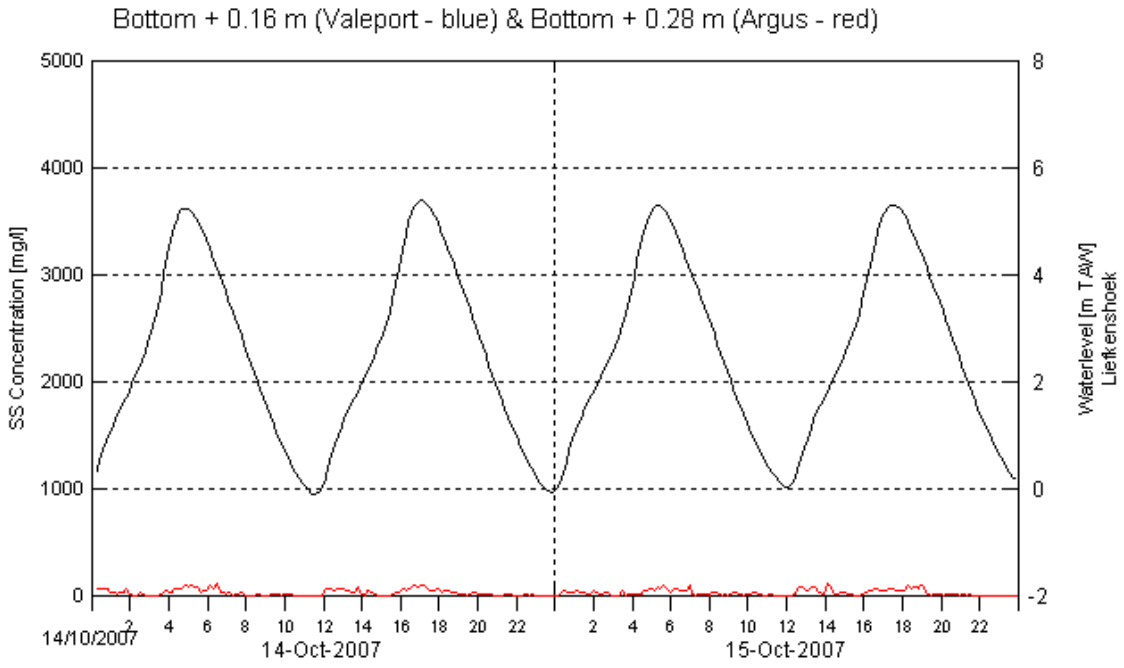
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

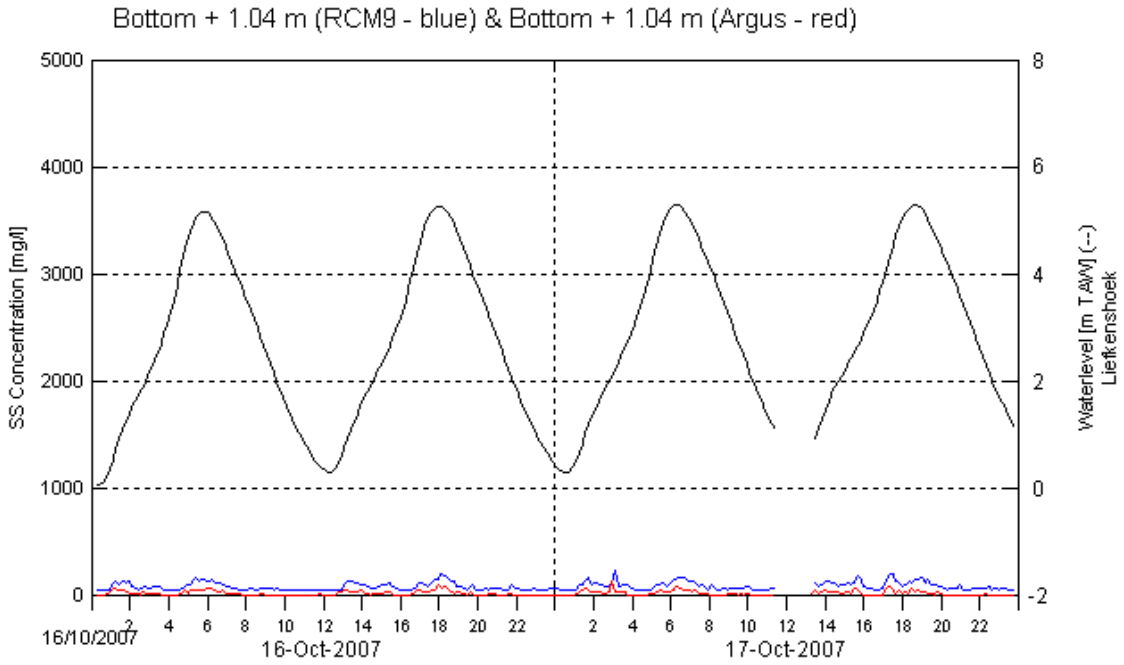
Date: 14/10/07 – 15/10/07

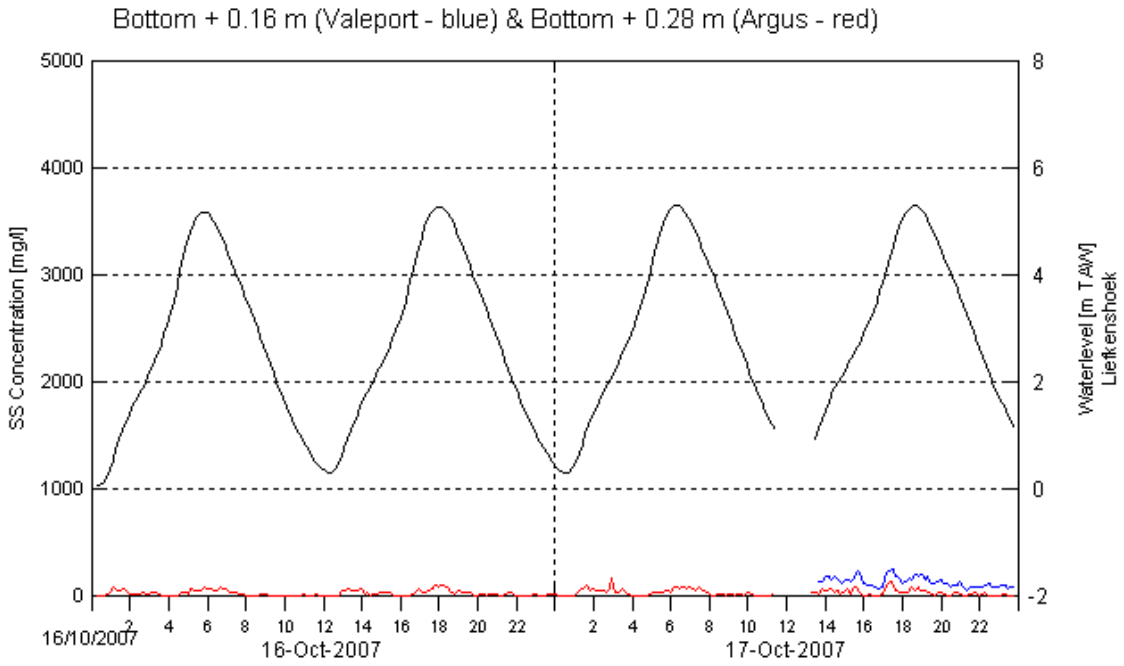
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

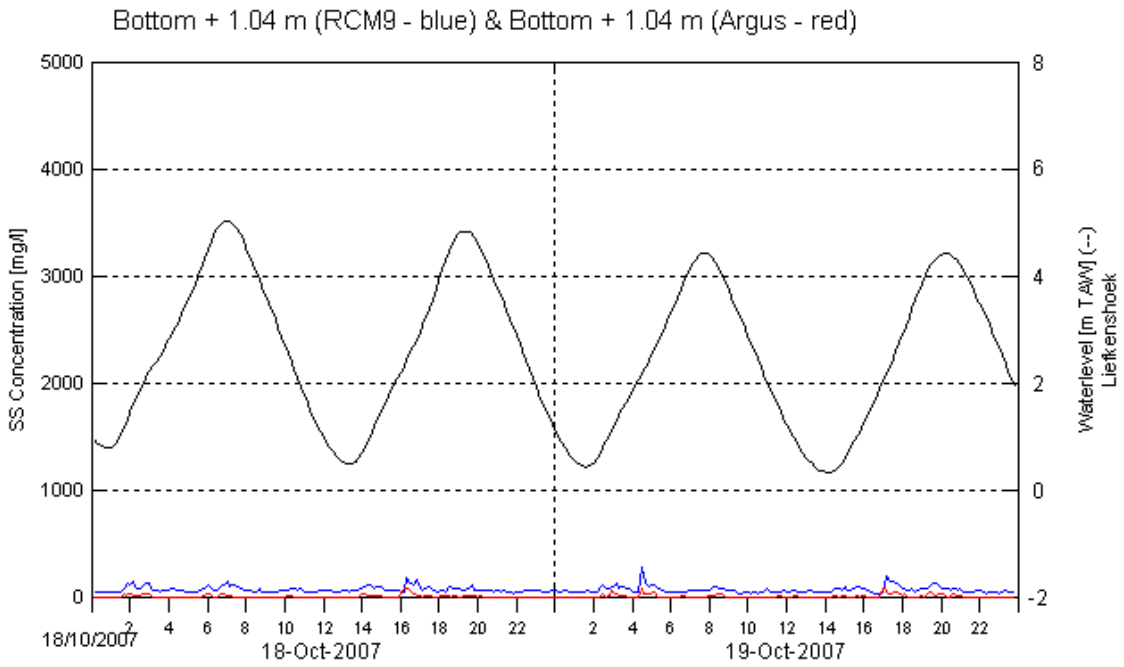
Date: 16/10/07 – 17/10/07

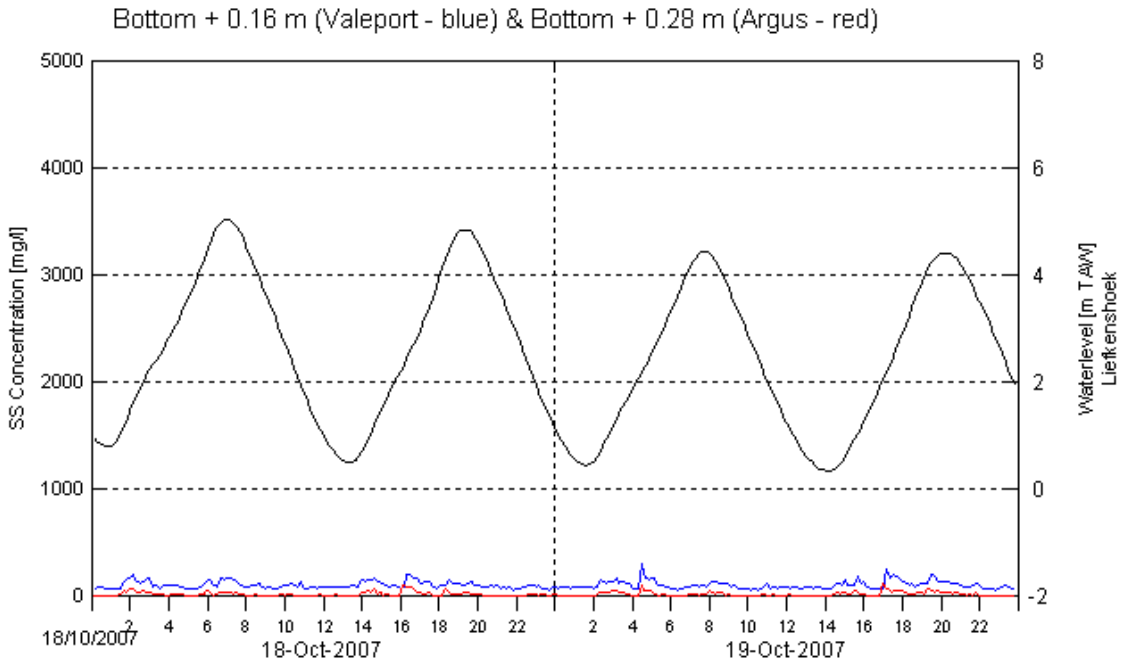
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

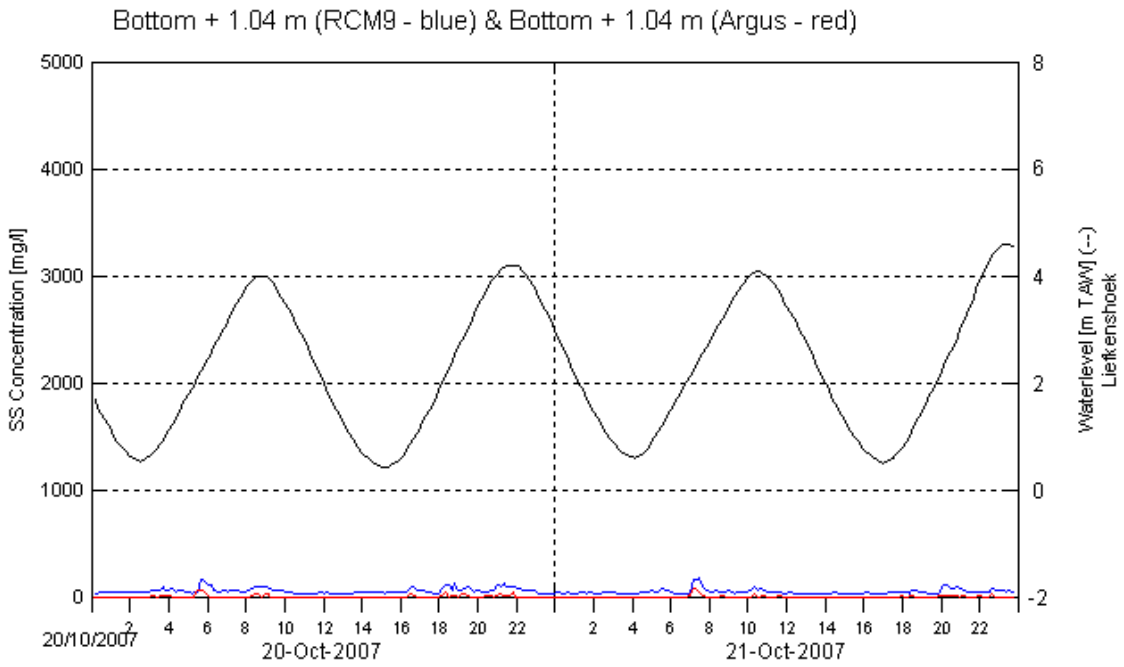
Date: 18/10/07 – 19/10/07

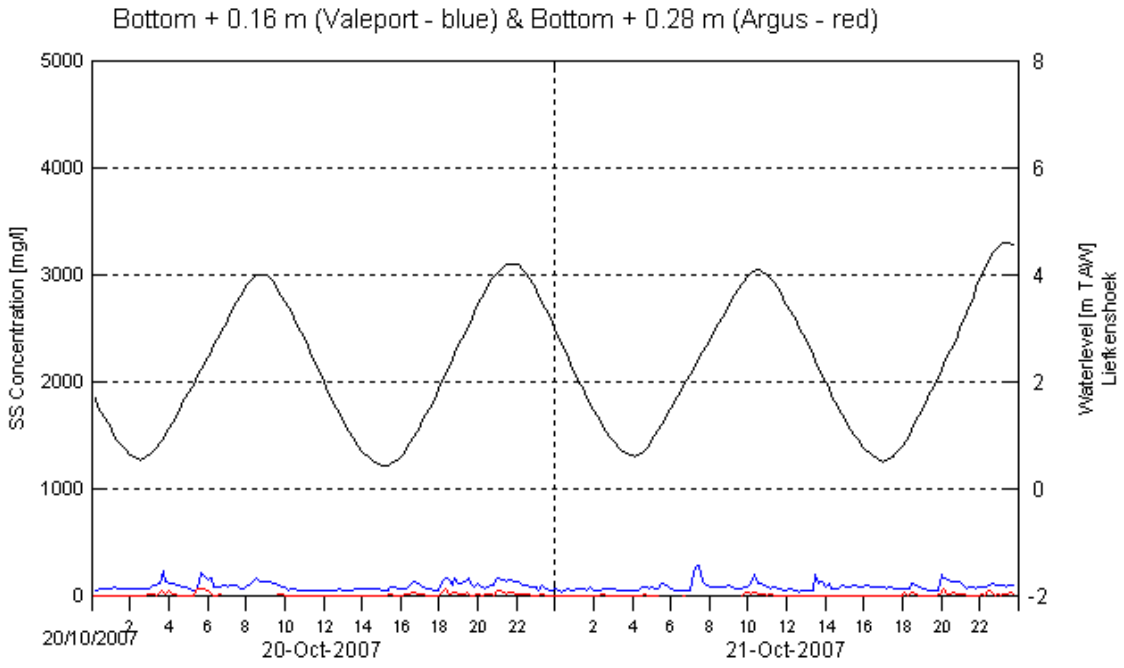
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

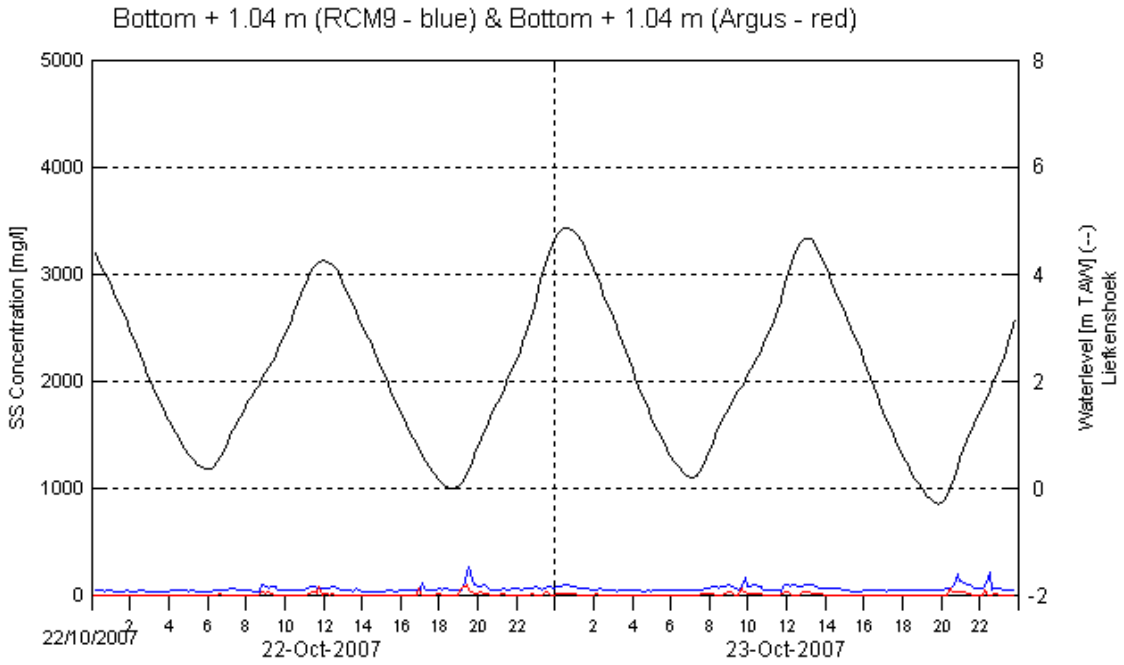
Date: 20/10/07 – 21/10/07

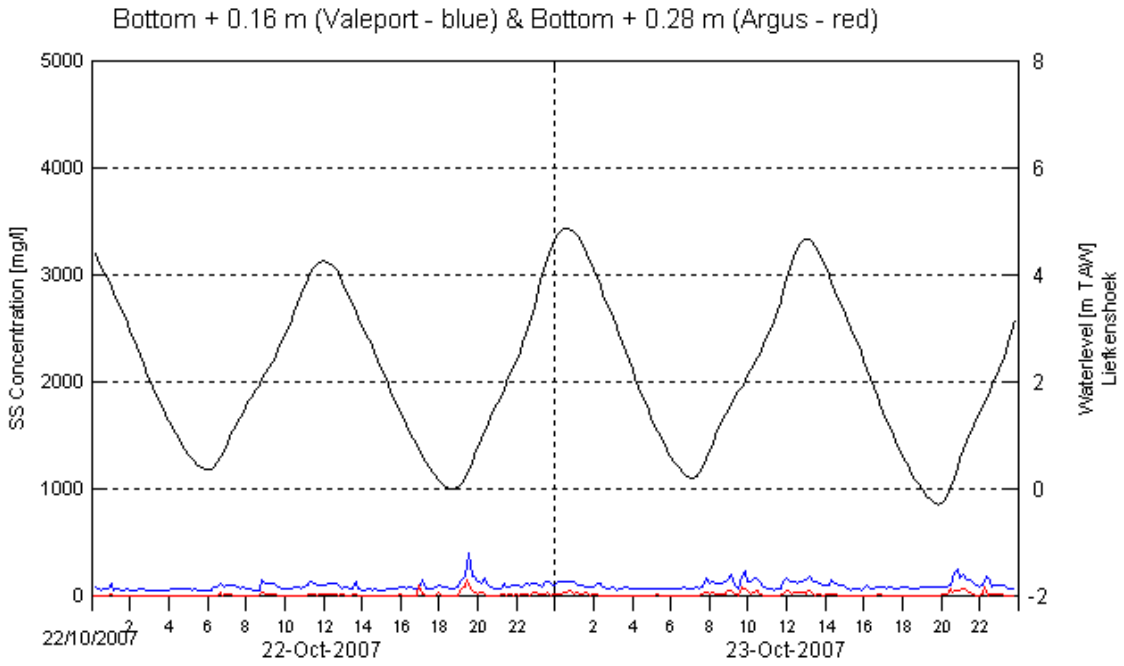
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

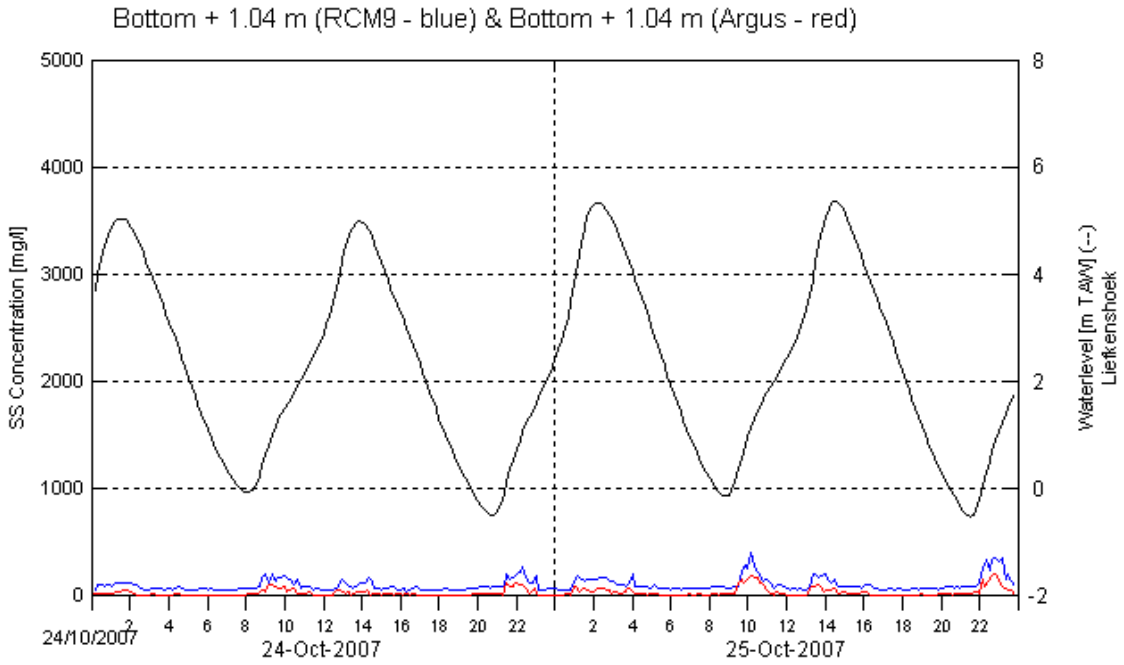
Date: 22/10/07 – 23/10/07

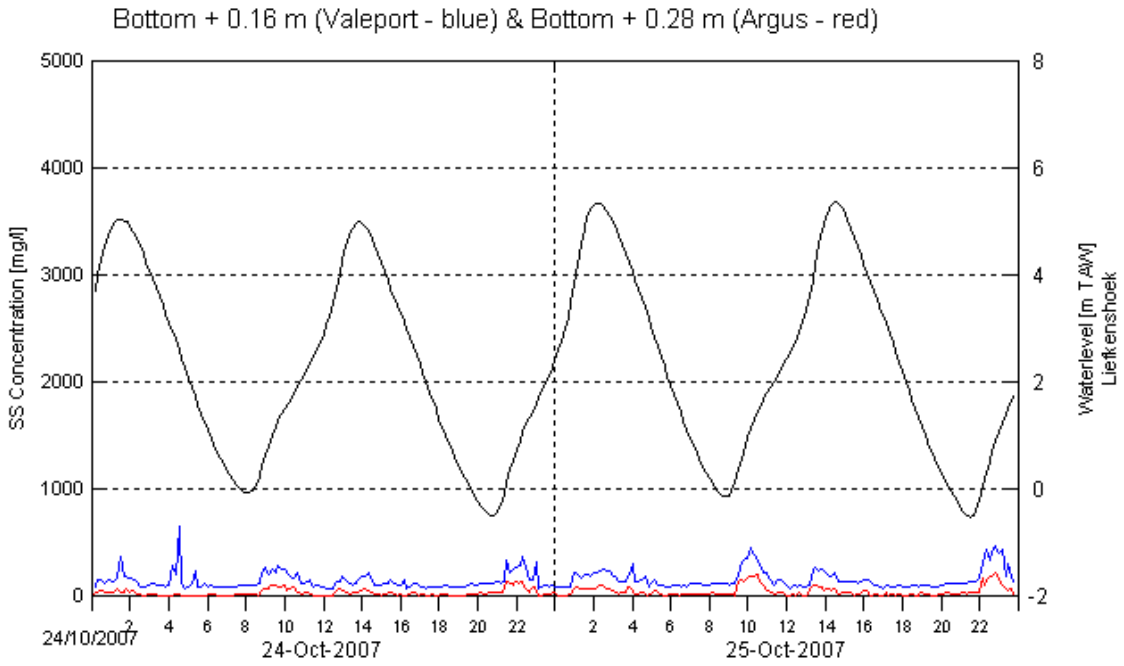
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

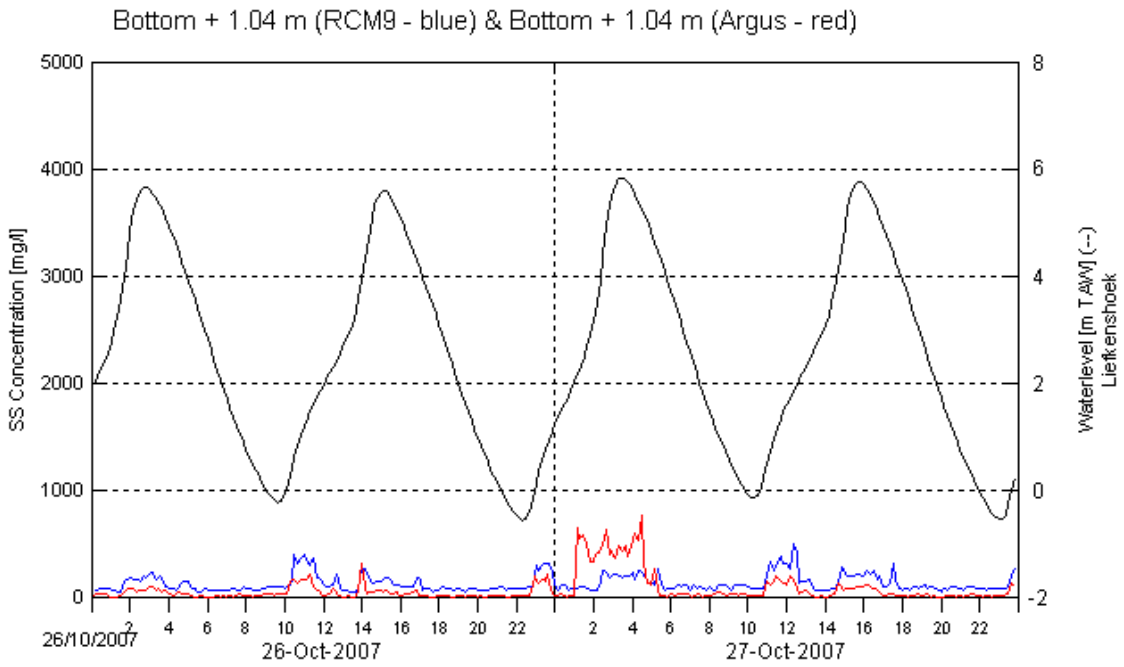
Date: 24/10/07 – 25/10/07

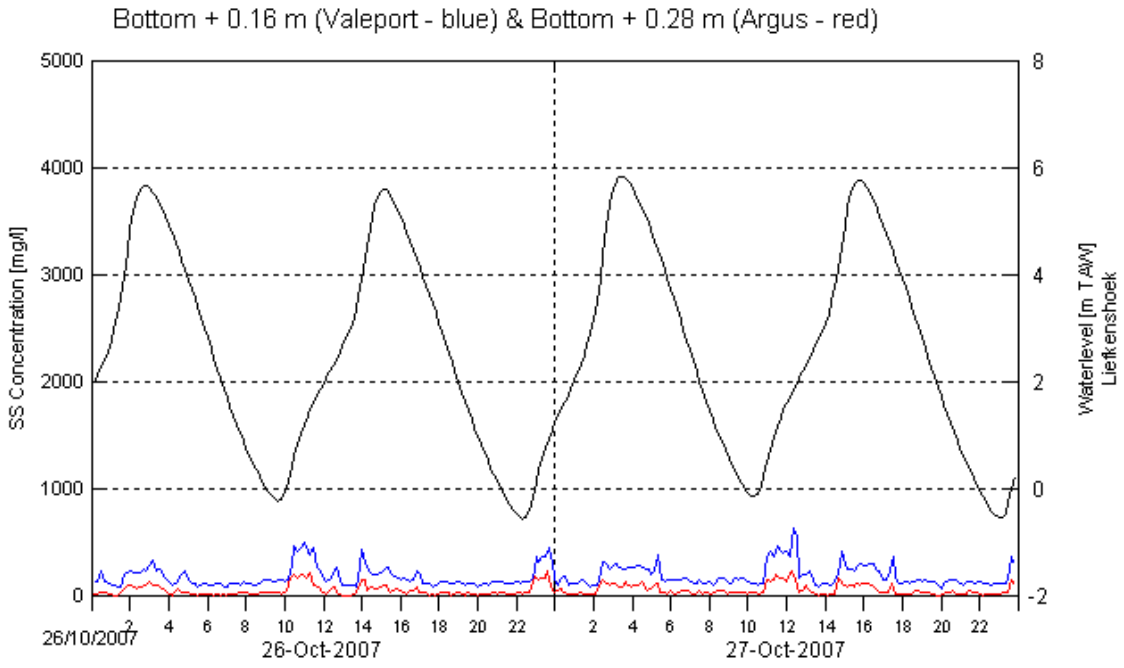
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

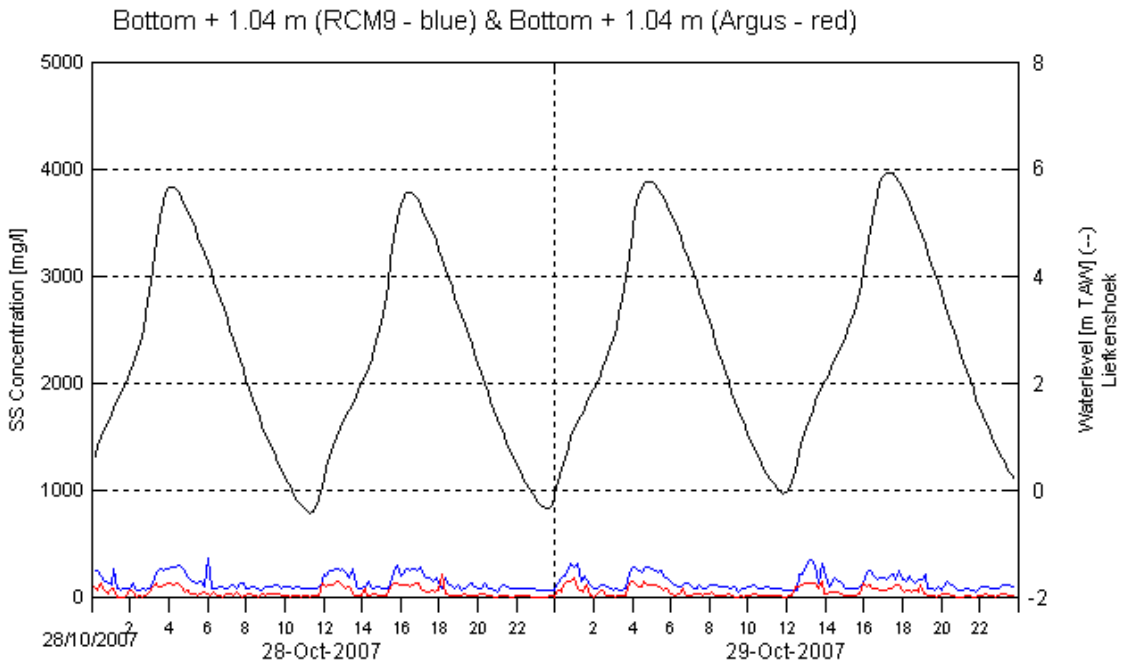
Date: 26/10/07 – 27/10/07

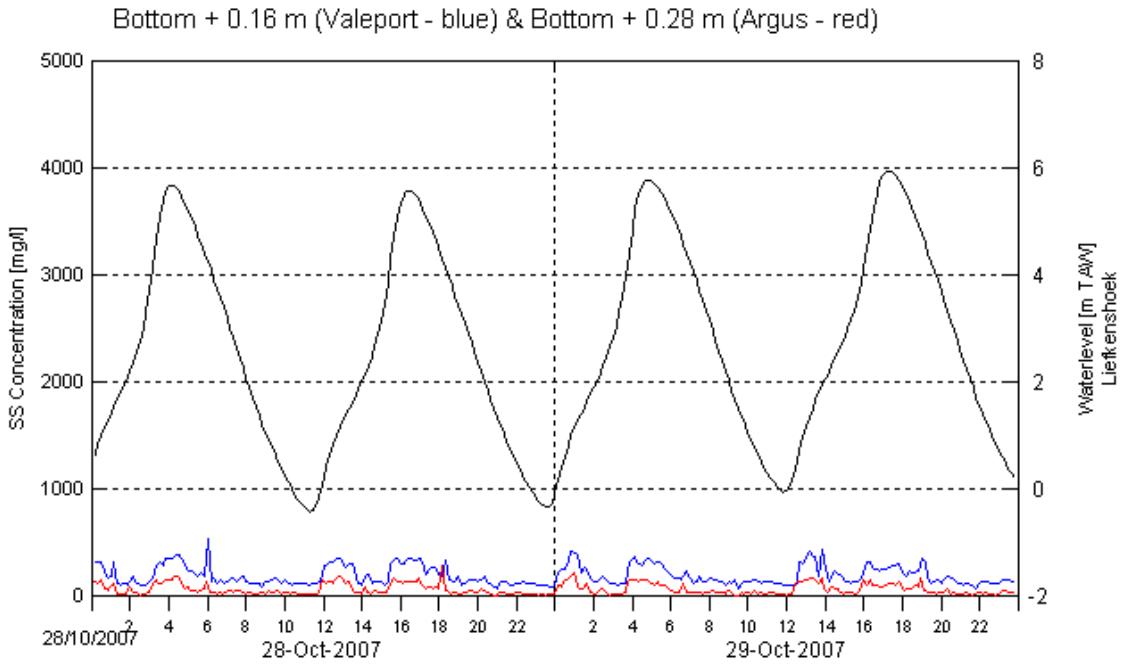
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

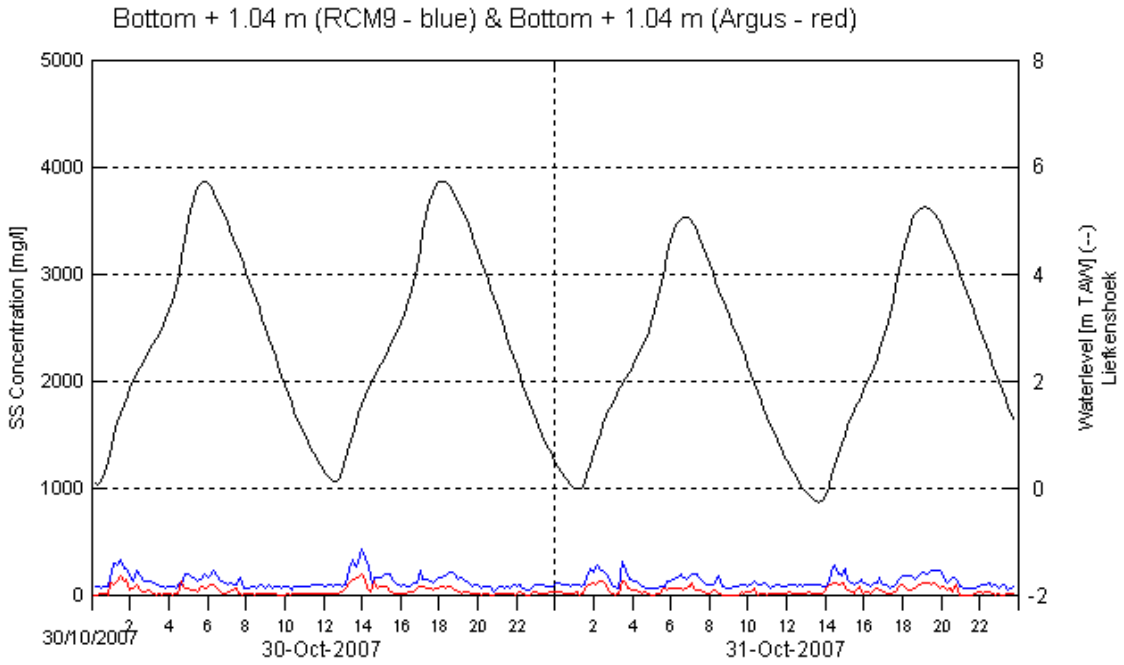
Date: 28/10/07 – 29/10/07

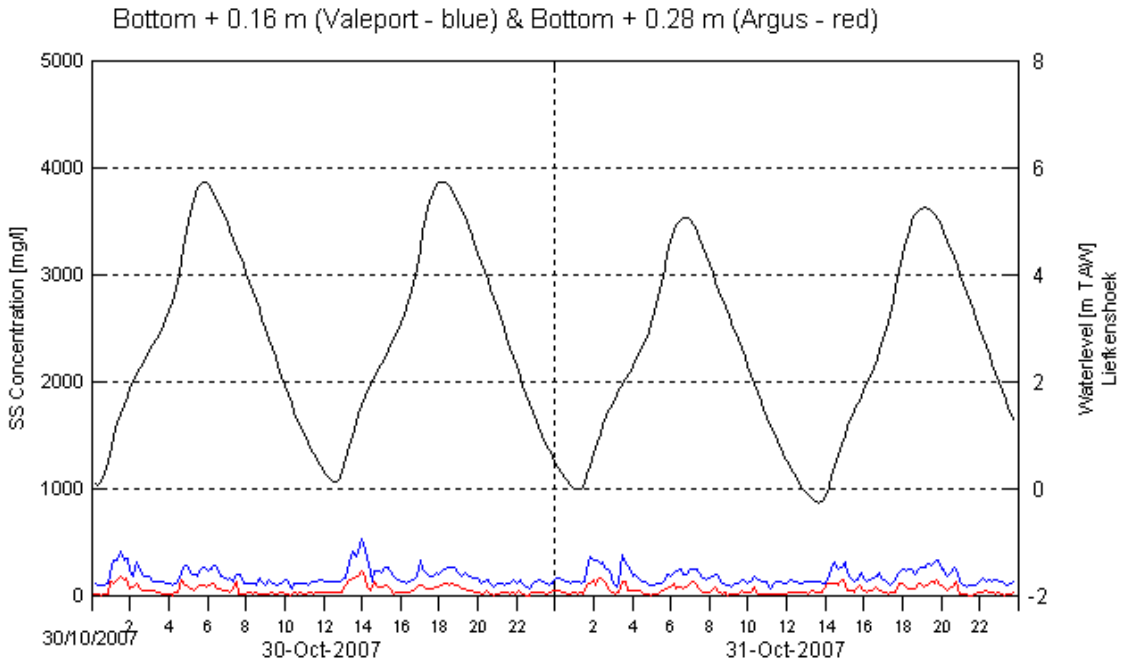
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

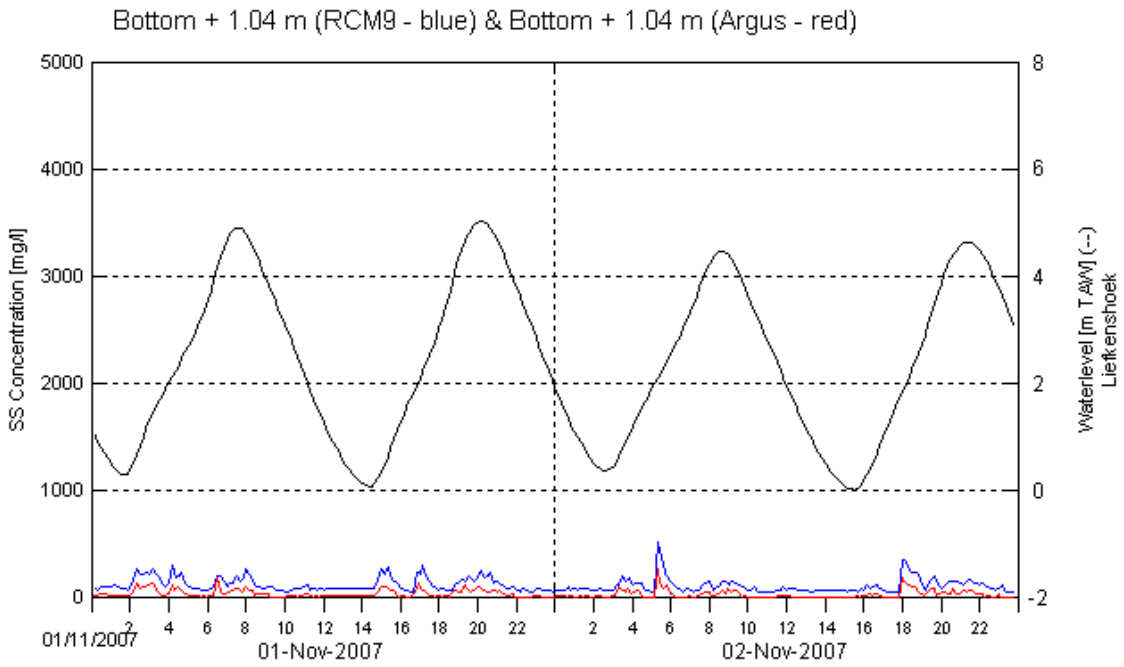
Date: 30/10/07 – 31/10/07

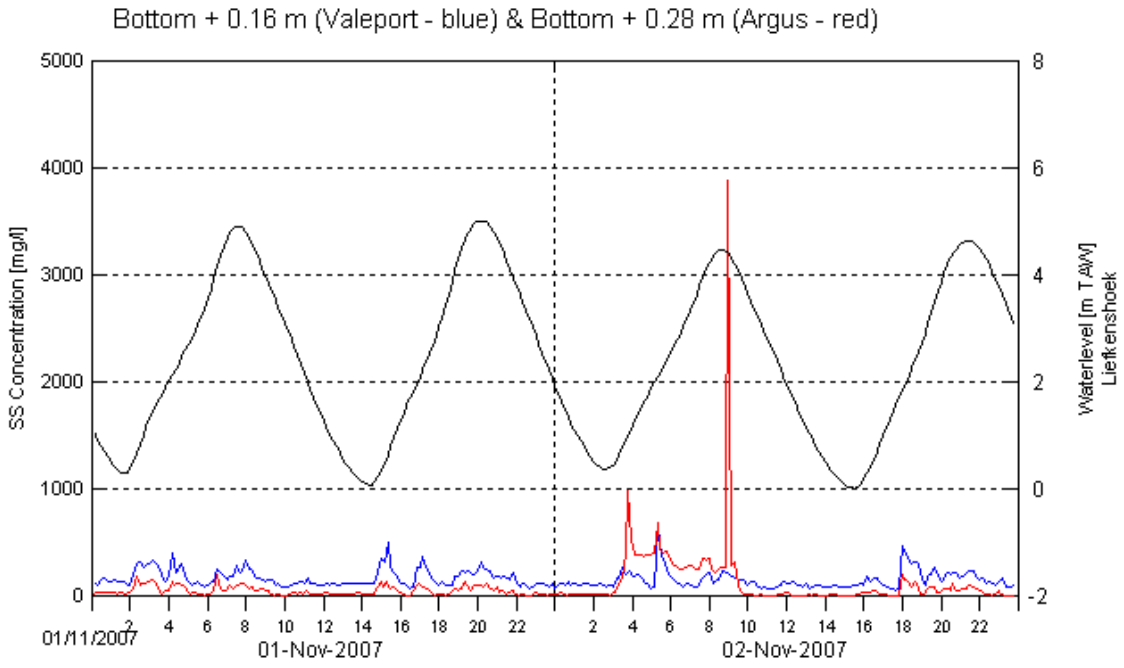
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

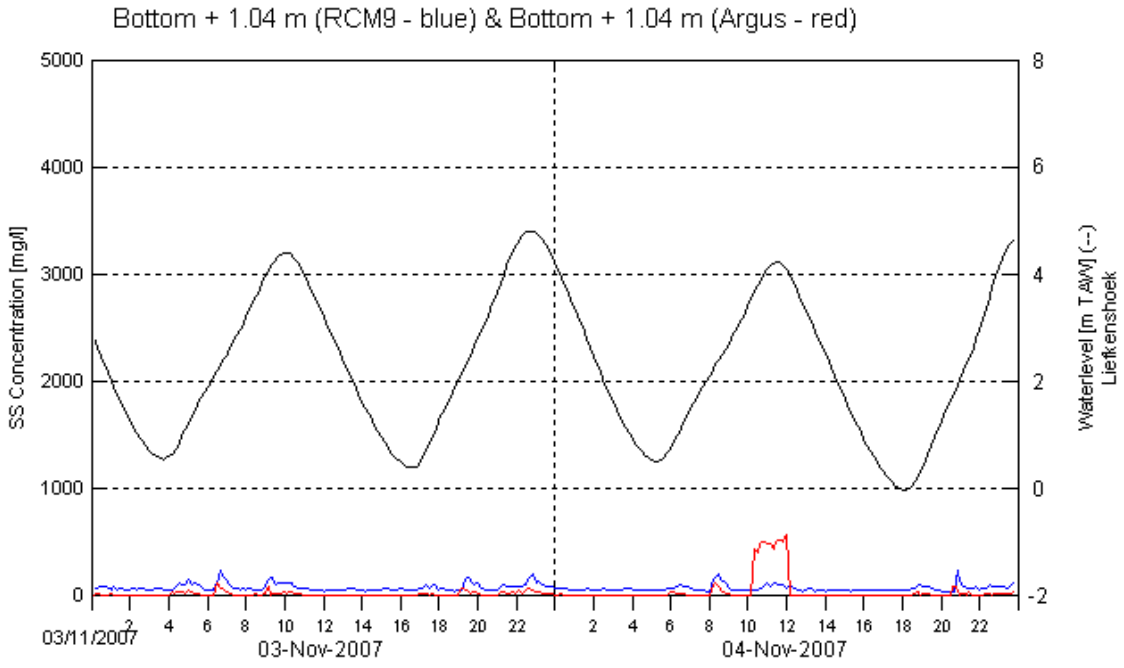
Date: 01/11/07 – 02/11/07

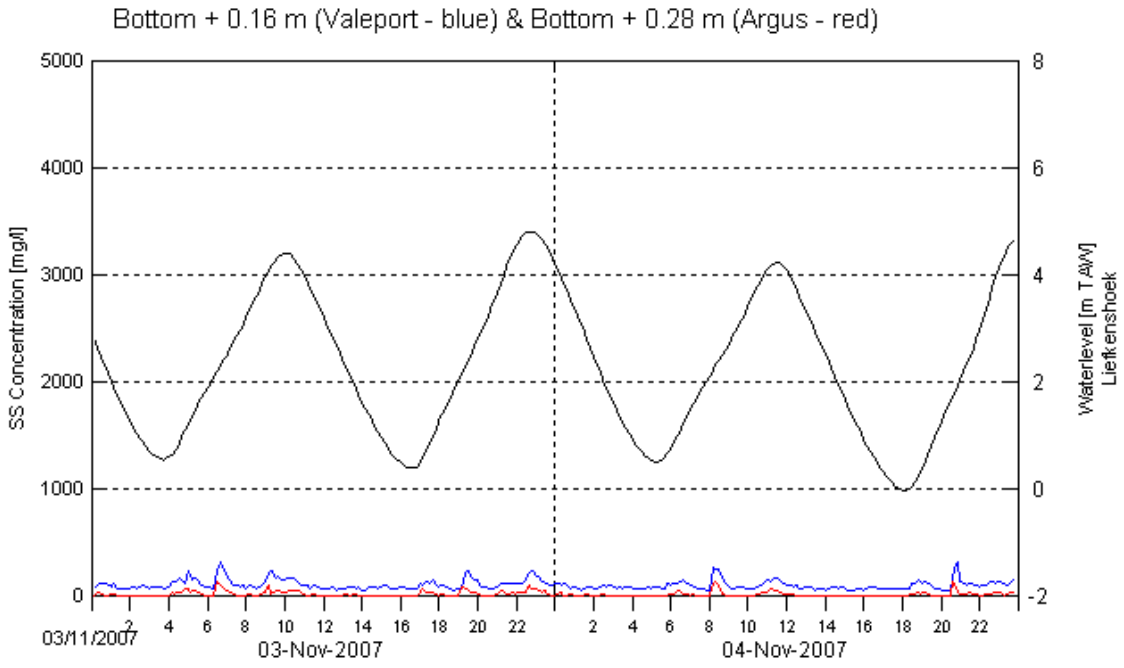
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

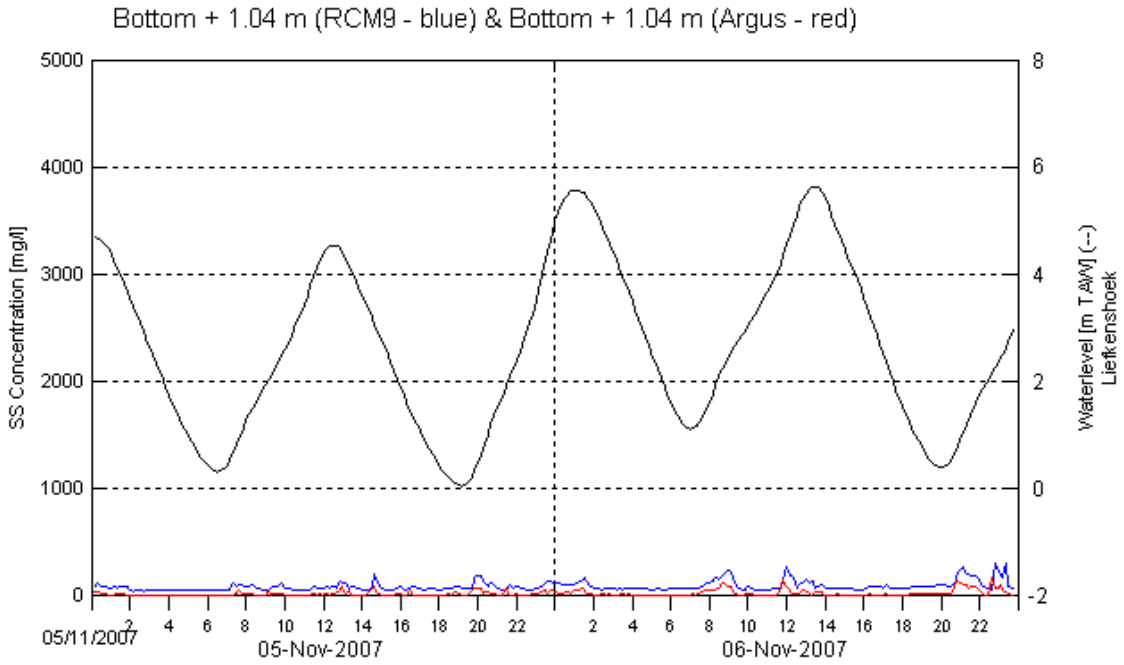
Date: 03/11/07 – 04/11/07

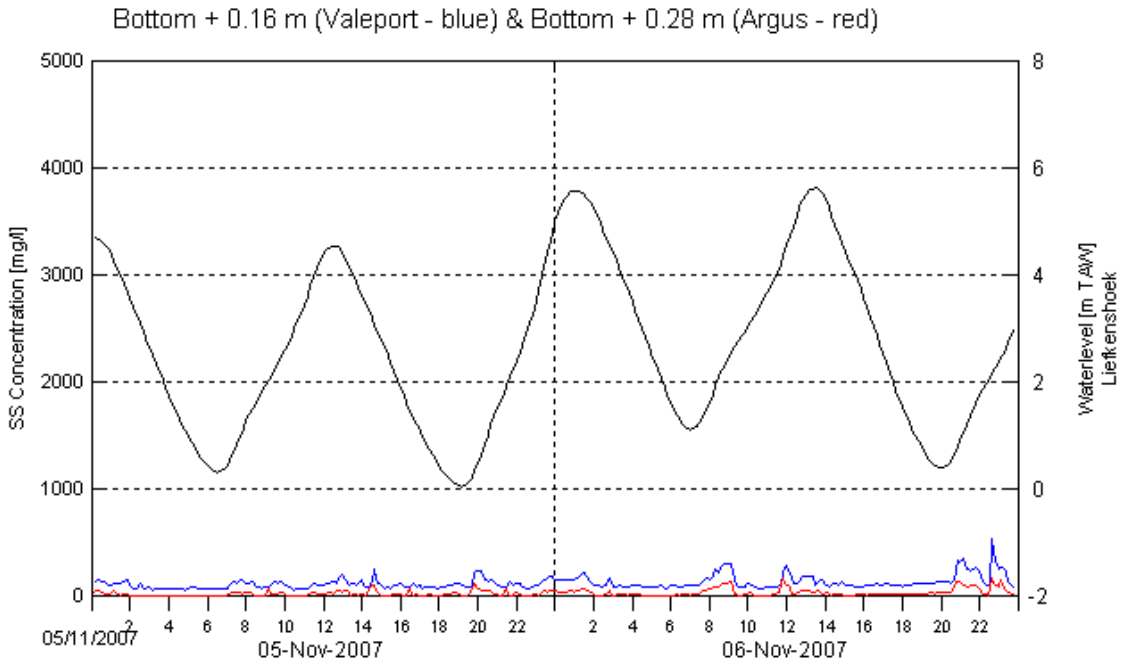
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

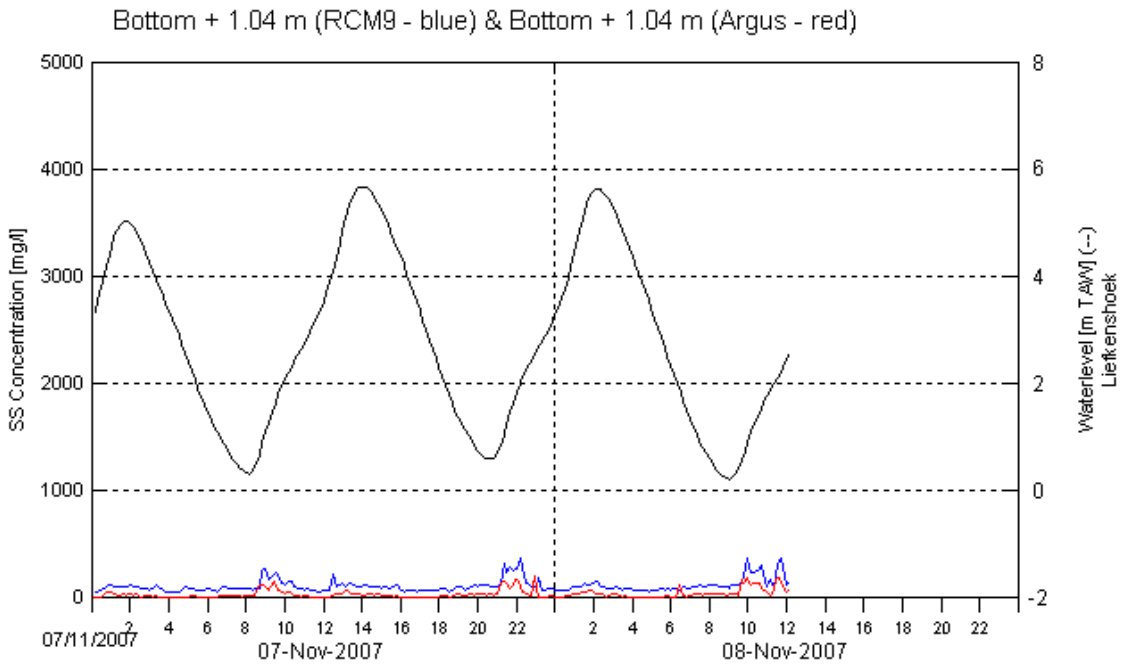
Date: 05/11/07 – 06/11/07

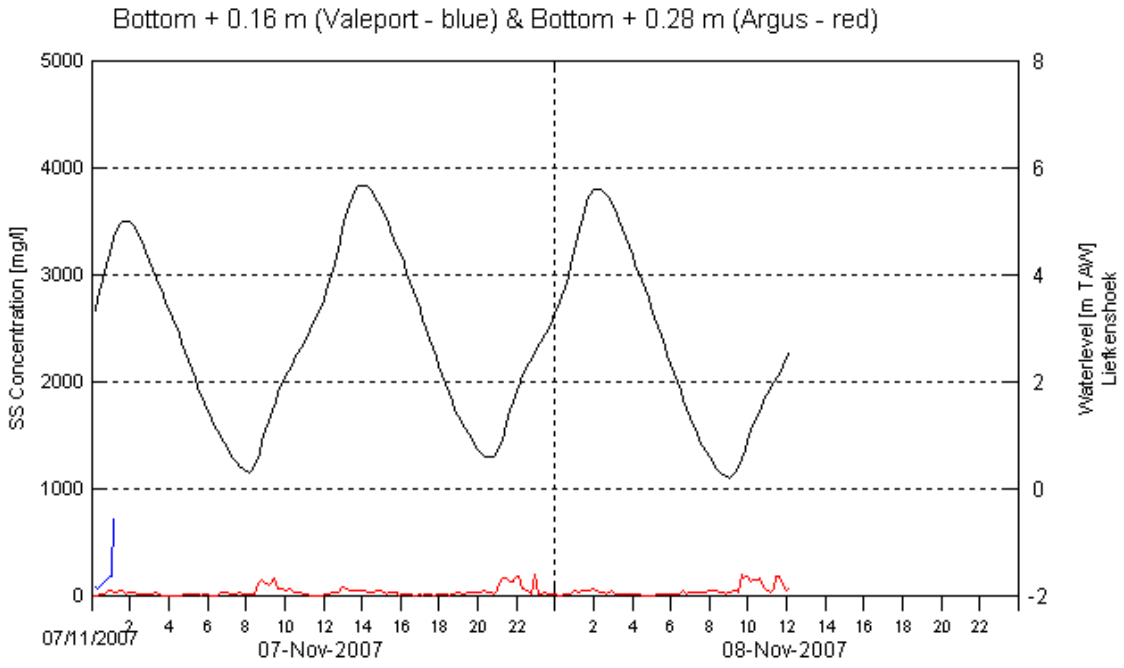
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04 m and 0.16 m above the bottom for SS concentration

Location: Deurganckdok Sill

Date: 07/11/07 – 08/11/07

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

## Comparison of SS concentrations during each tidal phase

| Date | Tide No. | Phase | Tidal Diff [m] | OBS SS Concentration [mg/l] | | Argus SS Concentration [mg/l] | |
|---|---|---|---|---|---|---|---|
| | | | | UP (RCM9) | DOWN (Valeport) | UP | DOWN |
| 20070926 | 1 | flood | 1 | 175.7 | 191 | 57.4 | 77.9 |
| 20070926 | 1 | ebb | 5.9 | 62.9 | 91.1 | 10.7 | 21.6 |
| 20070927 | 2 | flood | 6.1 | 117.3 | 146.8 | 44.4 | 55.6 |
| 20070927 | 2 | ebb | 6 | 93.8 | 126.7 | 24.4 | 30.6 |
| 20070927 | 3 | flood | 5.7 | 163.6 | 209.3 | 65.7 | 78.1 |
| 20070927 | 3 | ebb | 6.1 | 77.2 | 106.1 | 12.5 | 18.5 |
| 20070928 | 4 | flood | 6.5 | 116.4 | 150.7 | 41.9 | 52.8 |
| 20070928 | 4 | ebb | 6 | 107.9 | 149.3 | 30.6 | 39.5 |
| 20070928 | 5 | flood | 5.9 | 208.4 | 238.8 | 86.5 | 98.9 |
| 20070928 | 5 | ebb | 6.5 | 104.3 | 133.7 | 29.6 | 35.4 |
| 20070929 | 6 | flood | 6.6 | 162.3 | 205 | 68.8 | 78.1 |
| 20070929 | 6 | ebb | 6.2 | 136.9 | 172.3 | 42.5 | 53.7 |
| 20070929 | 7 | flood | 6.2 | 185.6 | 224.8 | 79.1 | 86.3 |
| 20070930 | 7 | ebb | 6.4 | 111.6 | 138.3 | 26.3 | 34.2 |
| 20070930 | 8 | flood | 6.3 | 148.3 | 191.9 | 59.3 | 65.5 |
| 20070930 | 8 | ebb | 6.1 | 114.5 | 147.1 | 30 | 37.4 |
| 20070930 | 9 | flood | 5.9 | 140.2 | 178.4 | 49.9 | 57.5 |
| 20071001 | 9 | ebb | 6.3 | 95 | 128.1 | 18.6 | 25.2 |
| 20071001 | 10 | flood | 5.9 | 102.4 | 140.8 | 34.1 | 39.4 |
| 20071001 | 10 | ebb | 5.8 | 123.3 | 164.4 | 37.6 | 44.6 |
| 20071001 | 11 | flood | 5.9 | 145.3 | 181.3 | 51.5 | 59.3 |
| 20071002 | 11 | ebb | 5.8 | 93.6 | 132.2 | 20.1 | 24.4 |
| 20071002 | 12 | flood | 5.5 | 90.3 | 133.2 | 24 | 28.8 |
| 20071002 | 12 | ebb | 5.3 | 81.1 | 114.5 | 15.2 | 18.4 |
| 20071002 | 13 | flood | 5.3 | 118.8 | 158.7 | 38.1 | 43.5 |
| 20071003 | 13 | ebb | 5.3 | 85.2 | 120.6 | 14.8 | 21 |
| 20071003 | 14 | flood | 4.9 | 120.9 | 155.6 | 38 | 45.5 |
| 20071003 | 14 | ebb | 4.8 | 87.5 | 124.6 | 15.4 | 19.1 |
| 20071003 | 15 | flood | 4.9 | 131.5 | 174.4 | 46.6 | 55.2 |
| 20071004 | 15 | ebb | 4.7 | 97.8 | 141.9 | 18.2 | 26 |
| 20071004 | 16 | flood | 4.2 | 93.2 | 122 | 25.4 | 32.1 |
| 20071004 | 16 | ebb | 4.1 | 70.3 | 97.3 | 11.8 | 12 |
| 20071004 | 17 | flood | 4.4 | 102.4 | 146.2 | 33.5 | 38.9 |
| 20071005 | 17 | ebb | 4.1 | 62.7 | 90.9 | 7.4 | 9.9 |
| 20071005 | 18 | flood | 3.5 | 84.3 | 114.5 | 17.6 | 22.6 |
| 20071005 | 18 | ebb | 3.9 | 44.3 | 63.6 | 2.9 | 4.3 |
| 20071005 | 19 | flood | 4.3 | 91.9 | 132.5 | 24.9 | 32.6 |
| 20071006 | 19 | ebb | 4.1 | 51.9 | 75.1 | 2.5 | 5.5 |
| 20071006 | 20 | flood | 3.8 | 77.6 | 115.1 | 17 | 21.3 |
| 20071006 | 20 | ebb | 4.2 | 41.3 | 61.5 | 1.1 | 1.2 |
| 20071007 | 21 | flood | 4.7 | 78.1 | 117.8 | 15.1 | 19.9 |
| 20071007 | 21 | ebb | 4.4 | 53 | 76.3 | 4.2 | 6.4 |
| 20071007 | 22 | flood | 4.4 | 79 | 114.8 | 16.2 | 20.6 |
| 20071007 | 22 | ebb | 4.7 | 55.1 | 81.7 | 6.6 | 8.2 |
| 20071008 | 23 | flood | 5.2 | 79.3 | 103.4 | 14.3 | 17.9 |

# Comparison of SS concentrations during each tidal phase

| Date | Tide No. | Phase | Tidal Diff [m] | OBS SS Concentration [mg/l] | | Argus SS Concentration [mg/l] | |
|---|---|---|---|---|---|---|---|
| | | | | UP (RCM9) | DOWN (Valeport) | UP | DOWN |
| 20071008 | 23 | ebb | 4.9 | 53.6 | 77.9 | 1.9 | 4.2 |
| 20071008 | 24 | flood | 4.7 | 76.5 | 118.7 | 15.5 | 18.8 |
| 20071008 | 24 | ebb | 5.2 | 64 | 93.4 | 7.8 | 12.2 |
| 20071009 | 25 | flood | 5.4 | 66.5 | 97 | 9.5 | 12.4 |
| 20071009 | 25 | ebb | 5.1 | 62.1 | 88.3 | 6 | 9.9 |
| 20071009 | 26 | flood | 5 | 72.7 | 110.4 | 14.1 | 19.7 |
| 20071009 | 26 | ebb | 5.3 | 61.6 | 88.1 | 4.9 | 11.7 |
| 20071010 | 27 | flood | 5.7 | 87.1 | 117.3 | 19.8 | 24.7 |
| 20071010 | 27 | ebb | 5.3 | 73.3 | 106.5 | 11 | 16.1 |
| 20071010 | 28 | flood | 5.2 | 95.7 | 132.3 | 24.9 | 30 |
| 20071010 | 28 | ebb | 5.6 | 61.2 | 87.4 | 4.7 | 11.3 |
| 20071011 | 29 | flood | 5.7 | 97.7 | 130 | 24.3 | 30.7 |
| 20071011 | 29 | ebb | 5.5 | 82 | 119 | 12.4 | 18.3 |
| 20071011 | 30 | flood | 5.4 | 109.7 | 147.4 | 34.5 | 40.4 |
| 20071011 | 30 | ebb | 5.4 | 80.2 | 114.5 | 13 | 22.2 |
| 20071012 | 31 | flood | 5.8 | 114.8 | 177.9 | 37.2 | 44.2 |
| 20071012 | 31 | ebb | 5.4 | 94.5 | - | 18.5 | 24.9 |
| 20071012 | 32 | flood | 5.3 | 122.8 | - | 40.1 | 49.2 |
| 20071012 | 32 | ebb | 5.8 | 72.7 | - | 10.2 | 20.9 |
| 20071013 | 33 | flood | 5.6 | 95.5 | - | 28.4 | 31.9 |
| 20071013 | 33 | ebb | 5.6 | 86.9 | - | 19.5 | 22.5 |
| 20071013 | 34 | flood | 5.5 | 105.2 | - | 32.7 | 39.3 |
| 20071013 | 34 | ebb | 5.6 | 74.4 | - | 12.5 | 19.8 |
| 20071014 | 35 | flood | 5.5 | 90.1 | - | 26 | 29.2 |
| 20071014 | 35 | ebb | 5.3 | 76.3 | - | 12.4 | 18.8 |
| 20071014 | 36 | flood | 5.5 | 96.9 | - | 25.8 | 33.9 |
| 20071014 | 36 | ebb | 5.4 | 70.8 | - | 8.2 | 12.7 |
| 20071015 | 37 | flood | 5.4 | 76.5 | - | 16.2 | 21.1 |
| 20071015 | 37 | ebb | 5.2 | 76.3 | - | 13.8 | 18.6 |
| 20071015 | 38 | flood | 5.3 | 101.2 | - | 25.8 | 32.1 |
| 20071016 | 38 | ebb | 5.3 | 69.3 | - | 11 | 16.8 |
| 20071016 | 39 | flood | 5.1 | 77 | - | 17.9 | 23.2 |
| 20071016 | 39 | ebb | 4.9 | 59.5 | - | 6.9 | 12.4 |
| 20071016 | 40 | flood | 5 | 78.5 | - | 19.1 | 26.9 |
| 20071017 | 40 | ebb | 5 | 65.8 | - | 6.8 | 12.3 |
| 20071017 | 41 | flood | 5 | 83.9 | - | 21.5 | 34.3 |
| 20071017 | 41 | ebb | 4.3 | 74.2 | 168.6 | 10.6 | 20.4 |
| 20071017 | 42 | flood | 4.2 | 103.4 | 142.4 | 23.8 | 36.5 |
| 20071018 | 42 | ebb | 4.5 | 66.1 | 93.8 | 4.1 | 8.6 |
| 20071018 | 43 | flood | 4.2 | 70.5 | 100.2 | 6.3 | 12.9 |
| 20071018 | 43 | ebb | 4.5 | 55.1 | 82.1 | 0.4 | 2.8 |
| 20071018 | 44 | flood | 4.3 | 75 | 108.3 | 9.8 | 19.6 |
| 20071019 | 44 | ebb | 4.4 | 51.4 | 76.7 | 0.5 | 1.9 |
| 20071019 | 45 | flood | 4 | 71.7 | 100.8 | 8.4 | 12.5 |
| 20071019 | 45 | ebb | 4.1 | 49.2 | 74.6 | 2.4 | 3.5 |
| 20071019 | 46 | flood | 4.1 | 78 | 115 | 10.3 | 23.5 |

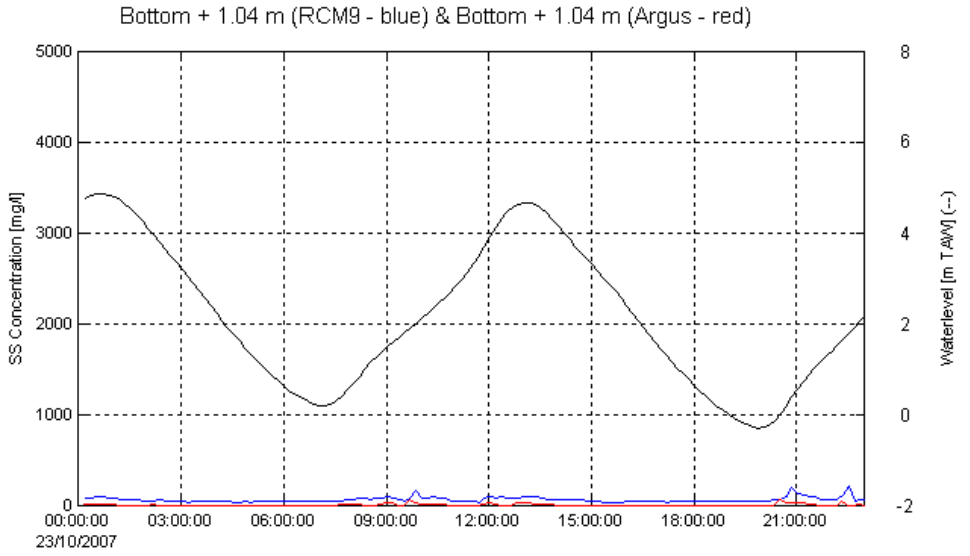
# Comparison of SS concentrations during each tidal phase

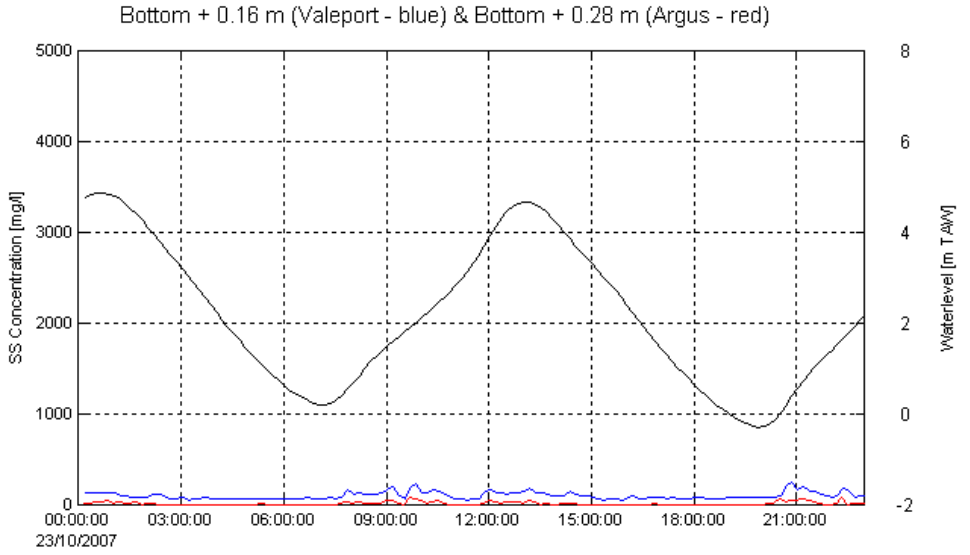
| Date | Tide No. | Phase | Tidal Diff [m] | OBS SS Concentration [mg/l] | | Argus SS Concentration [mg/l] | |
|---|---|---|---|---|---|---|---|
| | | | | UP (RCM9) | DOWN (Valeport) | UP | DOWN |
| 20071020 | 46 | ebb | 3.9 | 45.1 | 70.8 | 1.1 | 2.9 |
| 20071020 | 47 | flood | 3.5 | 61.6 | 97.1 | 7.2 | 739 |
| 20071020 | 47 | ebb | 3.6 | 40.3 | 61.4 | 1.3 | 254.8 |
| 20071020 | 48 | flood | 3.8 | 61.4 | 94.2 | 6.4 | 10.5 |
| 20071021 | 48 | ebb | 3.6 | 38.5 | 58.7 | 1 | 2.1 |
| 20071021 | 49 | flood | 3.4 | 54.7 | 88.6 | 5.4 | 691.7 |
| 20071021 | 49 | ebb | 3.6 | 33.2 | 72.4 | 0.4 | 0.2 |
| 20071021 | 50 | flood | 4.1 | 50.9 | 82.2 | 1.9 | 6.3 |
| 20071022 | 50 | ebb | 4.2 | 34.6 | 54.1 | 0 | 0.5 |
| 20071022 | 51 | flood | 3.9 | 48.1 | 78 | 5.5 | 3.6 |
| 20071022 | 51 | ebb | 4.3 | 42 | 68.9 | 2 | 4.1 |
| 20071023 | 52 | flood | 4.9 | 67 | 112 | 10.1 | 16.2 |
| 20071023 | 52 | ebb | 4.7 | 42.5 | 70 | 0.2 | 3.2 |
| 20071023 | 53 | flood | 4.5 | 65.8 | 111.9 | 8.7 | 16.3 |
| 20071023 | 53 | ebb | 5 | 46.2 | 77.9 | 1.5 | 1.8 |
| 20071024 | 54 | flood | 5.3 | 75.4 | 120.8 | 10.7 | 18.7 |
| 20071024 | 54 | ebb | 5.1 | 55.5 | 118.1 | 3.1 | 5.6 |
| 20071024 | 55 | flood | 5.1 | 94.1 | 142 | 25.9 | 31.4 |
| 20071024 | 55 | ebb | 5.5 | 59.6 | 98.2 | 3.7 | 9.2 |
| 20071025 | 56 | flood | 5.8 | 110 | 162.7 | 32.6 | 45.9 |
| 20071025 | 56 | ebb | 5.5 | 80.1 | 126.1 | 11.6 | 20.8 |
| 20071025 | 57 | flood | 5.5 | 130 | 185.4 | 51.3 | 58.4 |
| 20071025 | 57 | ebb | 5.8 | 61.6 | 98.9 | 4.1 | 9.1 |
| 20071026 | 58 | flood | 6.2 | 149.3 | 210.1 | 52.5 | 62 |
| 20071026 | 58 | ebb | 5.9 | 89.4 | 135.7 | 18.4 | 26.2 |
| 20071026 | 59 | flood | 5.8 | 169.4 | 232.9 | 69.7 | 76.2 |
| 20071026 | 59 | ebb | 6.1 | 81 | 124.2 | 10.7 | 19.1 |
| 20071027 | 60 | flood | 6.4 | 147.5 | 203.3 | 255.1 | 68.5 |
| 20071027 | 60 | ebb | 5.9 | 114.1 | 166.2 | 108.8 | 42.3 |
| 20071027 | 61 | flood | 5.9 | 186.5 | 254.2 | 73.1 | 84.8 |
| 20071027 | 61 | ebb | 6.3 | 103.6 | 145.5 | 17.4 | 25.3 |
| 20071028 | 62 | flood | 6.1 | 153.5 | 206.7 | 57.3 | 70.7 |
| 20071028 | 62 | ebb | 6.1 | 114.7 | 162.8 | 21.7 | 35.9 |
| 20071028 | 63 | flood | 6 | 164.3 | 225.4 | 64.3 | 80.7 |
| 20071028 | 63 | ebb | 5.9 | 107.7 | 154.4 | 26 | 39.2 |
| 20071029 | 64 | flood | 6.1 | 157.5 | 214.5 | 60.7 | 71 |
| 20071029 | 64 | ebb | 5.8 | 107.6 | 152.5 | 24 | 33.5 |
| 20071029 | 65 | flood | 6 | 160.3 | 216.8 | 61.6 | 77.9 |
| 20071030 | 65 | ebb | 5.8 | 104.4 | 151.6 | 22.7 | 33.2 |
| 20071030 | 66 | flood | 5.6 | 144.9 | 201.5 | 50.2 | 64 |
| 20071030 | 66 | ebb | 5.5 | 91.7 | 136.3 | 14.8 | 26.2 |
| 20071030 | 67 | flood | 5.6 | 165.7 | 224.5 | 63.1 | 77.4 |
| 20071031 | 67 | ebb | 5.7 | 94.3 | 138.6 | 14.6 | 29.1 |
| 20071031 | 68 | flood | 5.1 | 135.3 | 193.3 | 46.8 | 58.7 |
| 20071031 | 68 | ebb | 5.3 | 97 | 137.6 | 17.6 | 29.7 |
| 20071031 | 69 | flood | 5.5 | 139.9 | 193.5 | 51.5 | 66.6 |

## Comparison of SS concentrations during each tidal phase

| Date | Tide No. | Phase | Tidal Diff [m] | OBS SS Concentration [mg/l] | | Argus SS Concentration [mg/l] | |
|---|---|---|---|---|---|---|---|
| | | | | UP (RCM9) | DOWN (Valeport) | UP | DOWN |
| 20071101 | 69 | ebb | 4.9 | 104.1 | 153.4 | 26.1 | 35.8 |
| 20071101 | 70 | flood | 4.6 | 143.3 | 193.3 | 48.6 | 64.2 |
| 20071101 | 70 | ebb | 4.8 | 86 | 126.7 | 13.9 | 23.1 |
| 20071101 | 71 | flood | 5 | 136 | 190.1 | 41.3 | 51.9 |
| 20071102 | 71 | ebb | 4.6 | 78.9 | 118.2 | 10.3 | 17.6 |
| 20071102 | 72 | flood | 4.1 | 120.6 | 164.4 | 34.9 | 313.4 |
| 20071102 | 72 | ebb | 4.4 | 65.6 | 97.7 | 6.6 | 120.1 |
| 20071102 | 73 | flood | 4.6 | 122.1 | 173.8 | 36.2 | 47.9 |
| 20071103 | 73 | ebb | 4.1 | 65.5 | 97.5 | 5.3 | 10.2 |
| 20071103 | 74 | flood | 3.8 | 84.3 | 126.5 | 15.1 | 24.5 |
| 20071103 | 74 | ebb | 4 | 48.7 | 76.4 | 1.7 | 4.7 |
| 20071103 | 75 | flood | 4.4 | 70.1 | 102.5 | 11.6 | 18.4 |
| 20071104 | 75 | ebb | 4.3 | 56.5 | 85.7 | 3.7 | 6.8 |
| 20071104 | 76 | flood | 3.7 | 68 | 101.8 | 103.1 | 15.7 |
| 20071104 | 76 | ebb | 4.2 | 44.4 | 64.3 | 39 | 1.4 |
| 20071105 | 77 | flood | 4.7 | 67.9 | 107 | 8.2 | 14.9 |
| 20071105 | 77 | ebb | 4.4 | 49.1 | 77.2 | 1.6 | 3.8 |
| 20071105 | 78 | flood | 4.2 | 60.7 | 90 | 4 | 8.6 |
| 20071105 | 78 | ebb | 4.5 | 64.3 | 98 | 9.1 | 11.5 |
| 20071106 | 79 | flood | 5.5 | 83.9 | 121.3 | 15.9 | 22.8 |
| 20071106 | 79 | ebb | 4.4 | 61.9 | 94.8 | 5.1 | 8.8 |
| 20071106 | 80 | flood | 4.5 | 101.4 | 141.8 | 26.2 | 37.5 |
| 20071106 | 80 | ebb | 5.2 | 65.9 | 98.3 | 3.1 | 8.4 |
| 20071107 | 81 | flood | 4.6 | 122.2 | 205 | 38.3 | 48.4 |
| 20071107 | 81 | ebb | 4.7 | 68.9 | - | 3.9 | 9.4 |
| 20071107 | 82 | flood | 5.3 | 110.3 | - | 30.7 | 41.9 |
| 20071107 | 82 | ebb | 5.1 | 75.9 | - | 8.3 | 15.6 |
| 20071108 | 83 | flood | 5 | 129.4 | - | 41.6 | 52.8 |
| 20071108 | 83 | ebb | 5.4 | 77.2 | - | 10.8 | 14.7 |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1.04m and 0.16 m above the bottom for SS concentration

| Location: | Date: |
|---|---|
| Deurganckdok CDW | Avg Tide 23/10 – 24/10 |

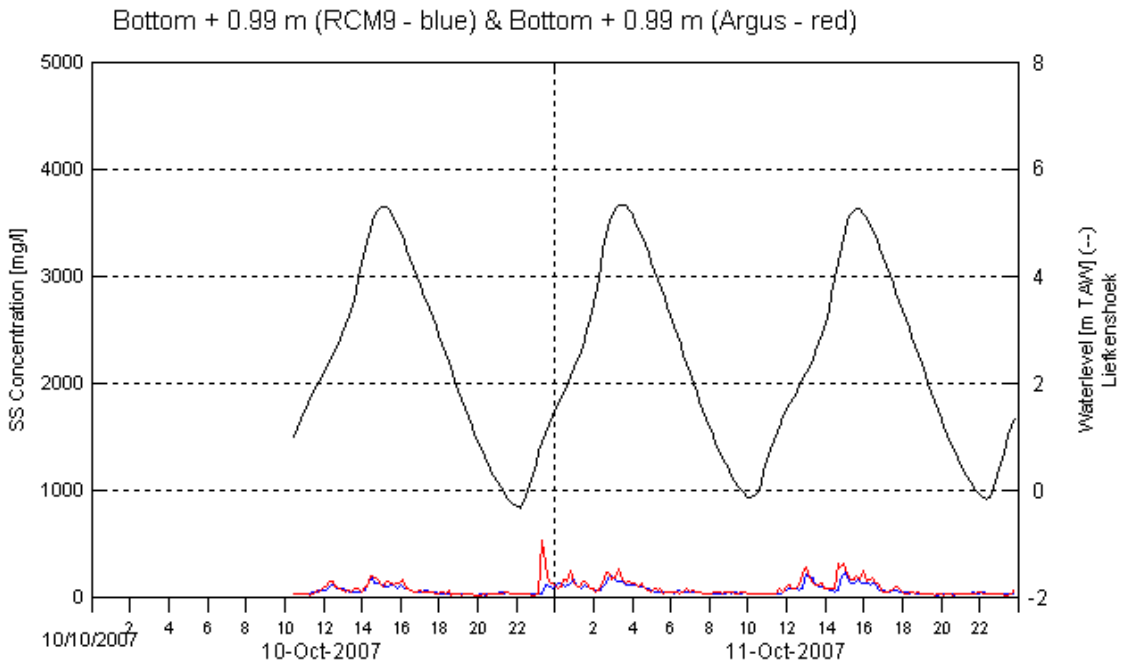
*Data processed by:* IMDC

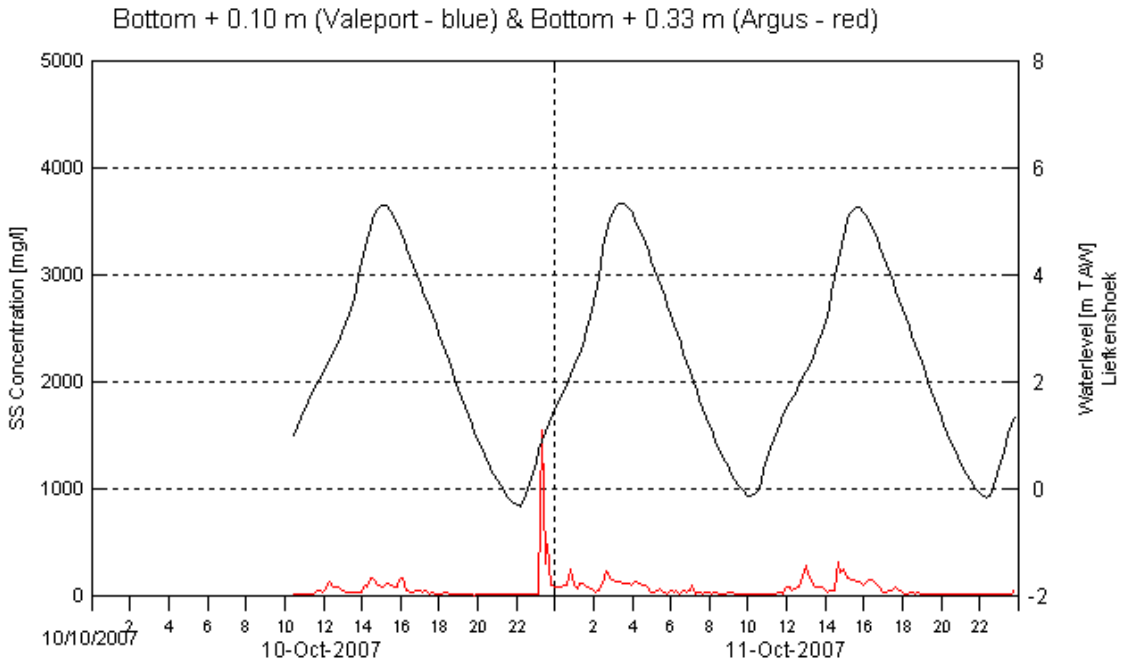
*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

## E.2 Sill Frame

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

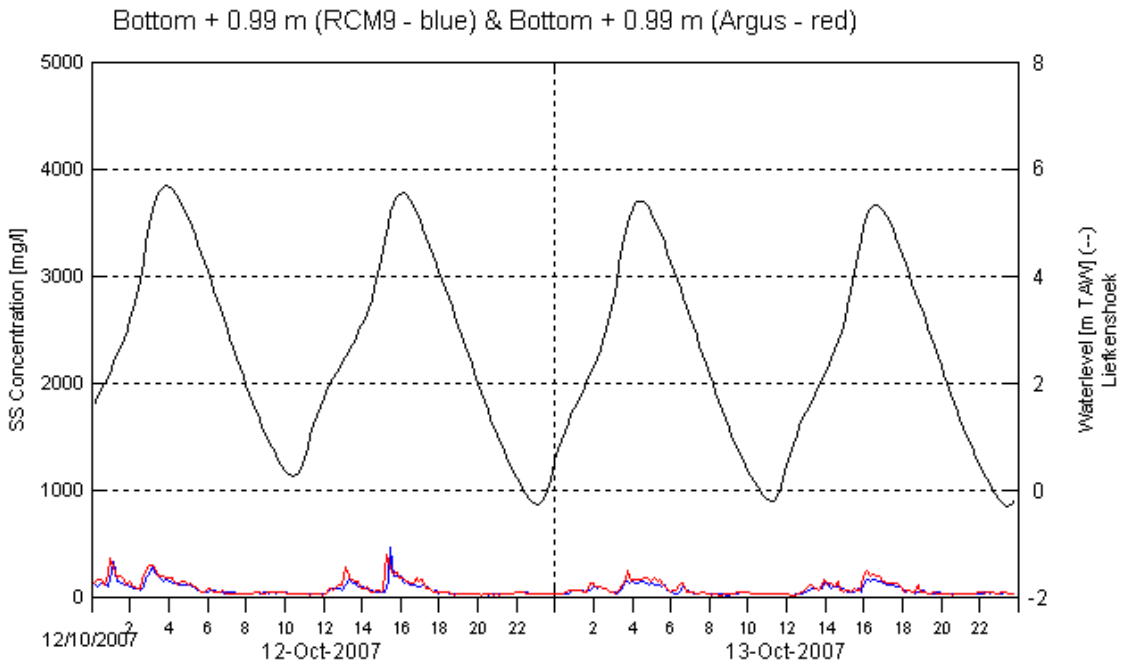
Date: 10/10/07 – 11/10/07

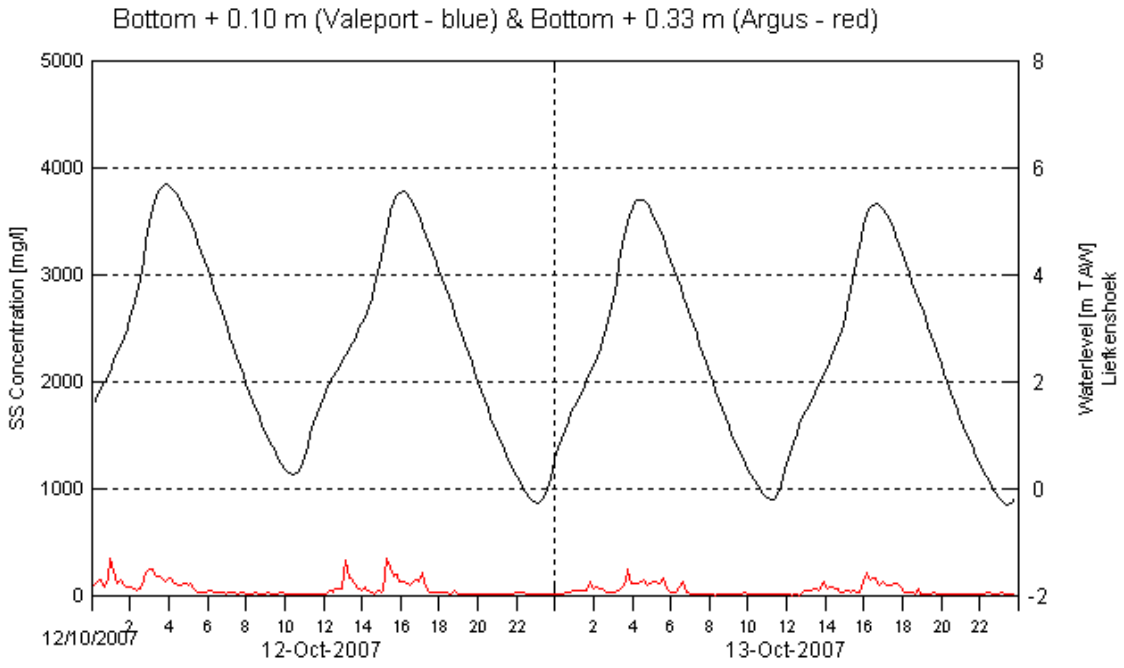
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

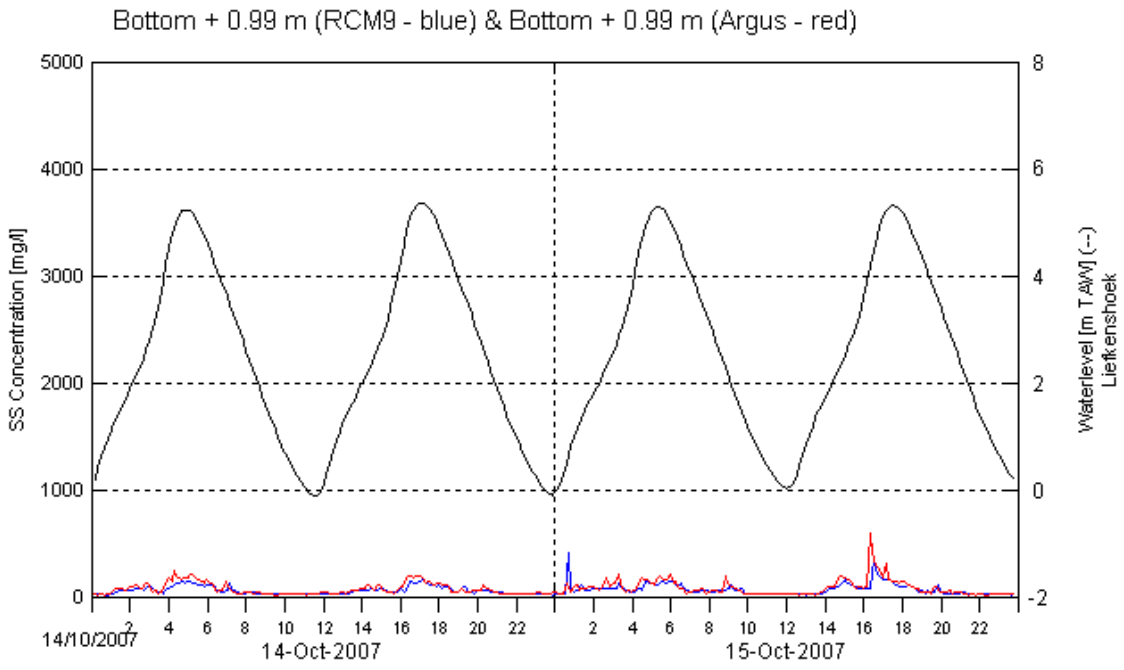
Date: 12/10/07 – 13/10/07

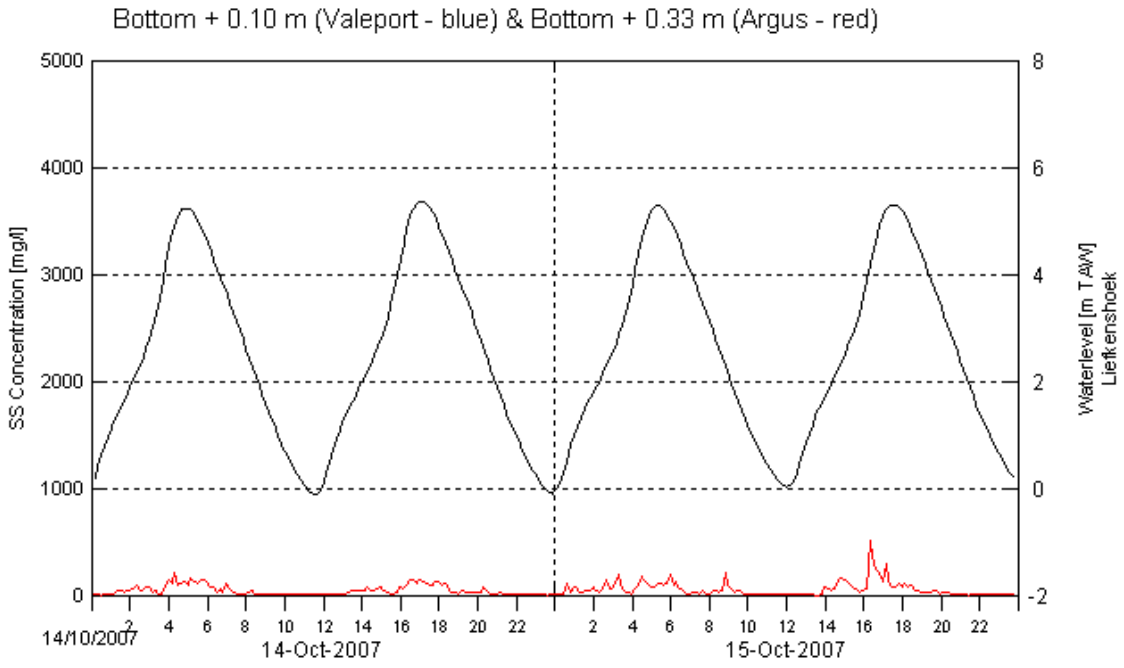
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

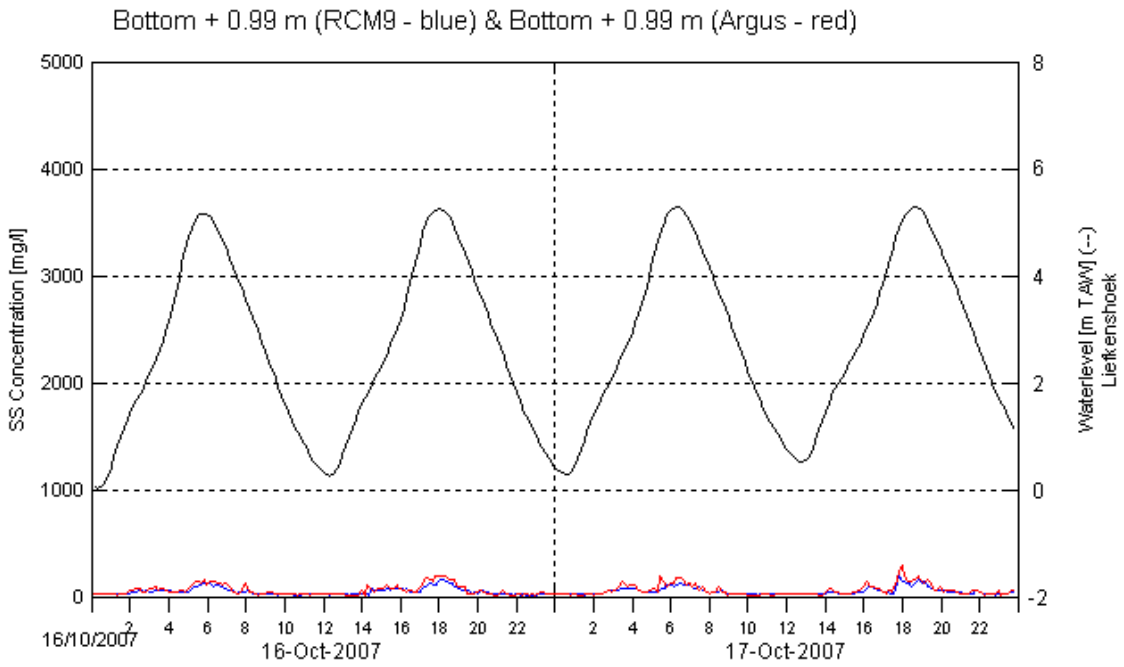
Date: 14/10/07 – 15/10/07

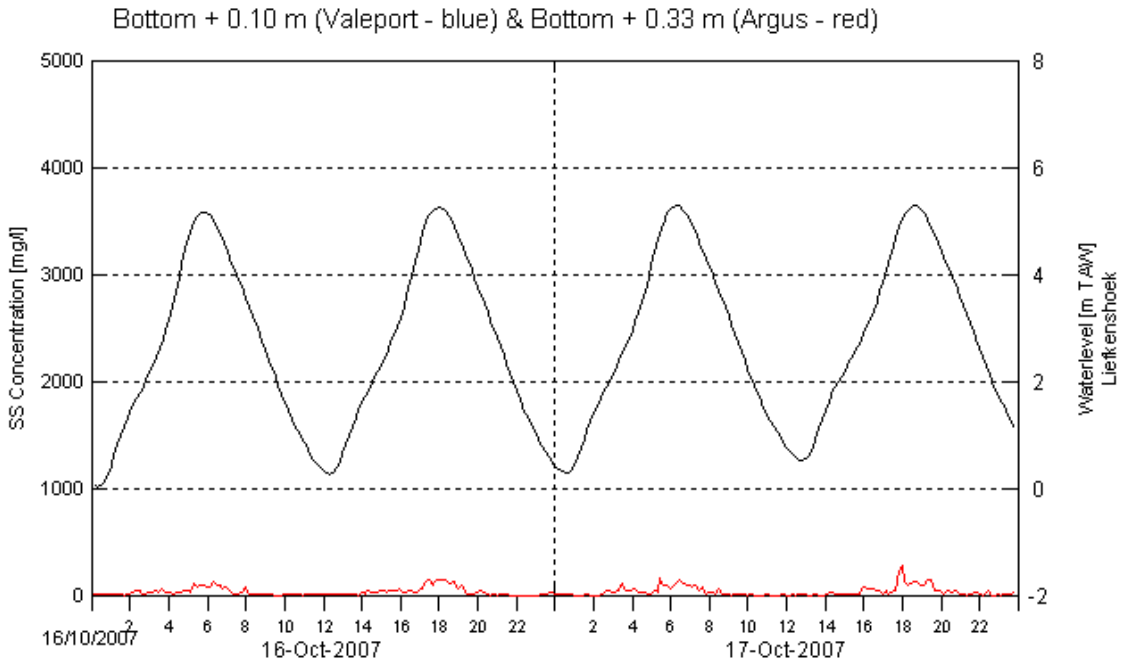
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

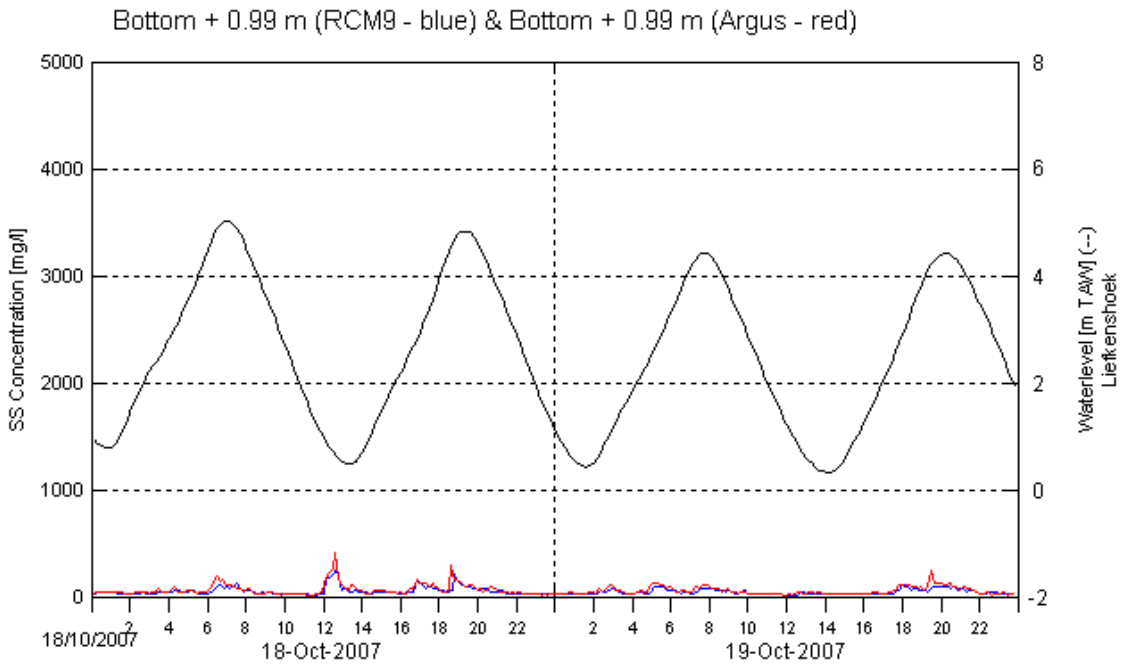
Date: 16/10/07 – 17/10/07

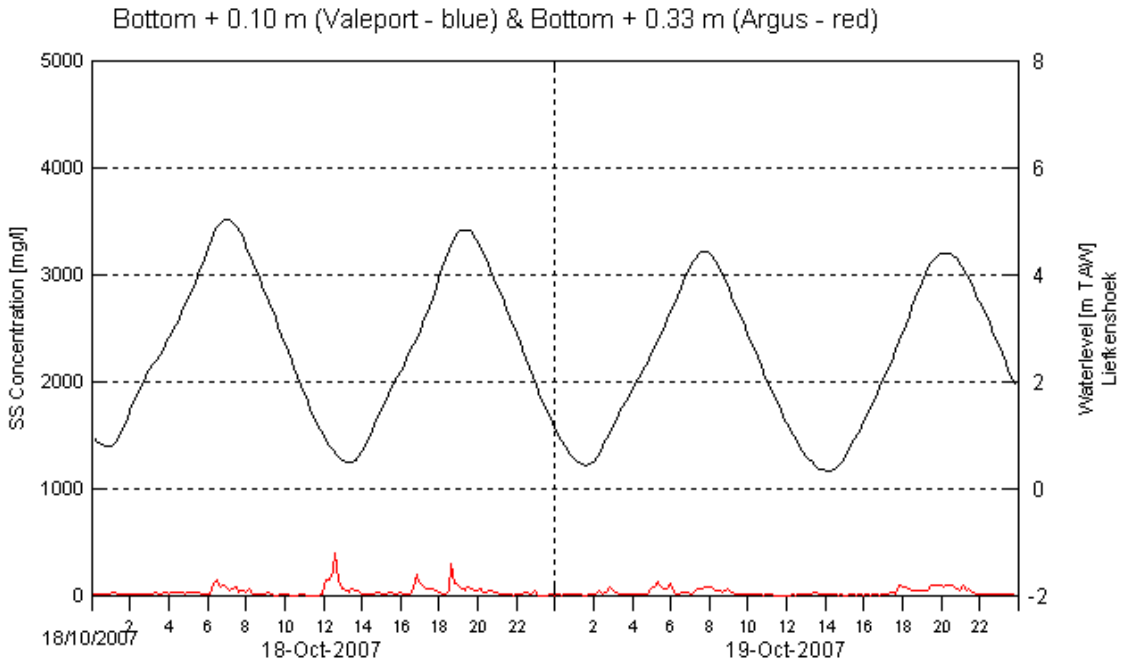
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

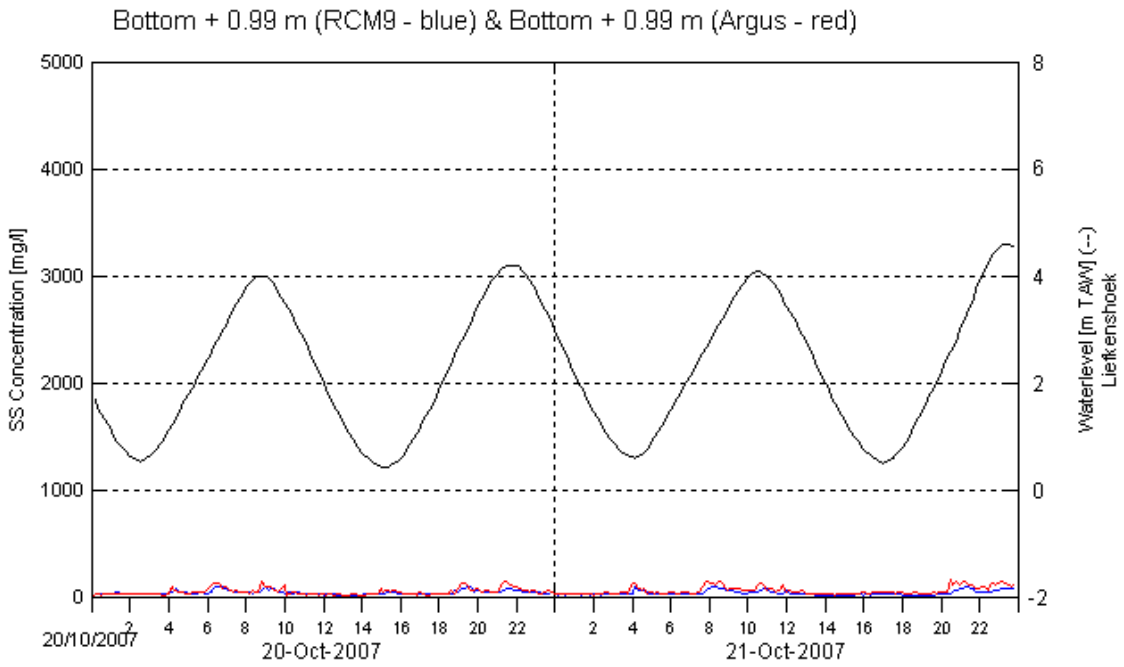
Date: 18/10/07 – 19/10/07

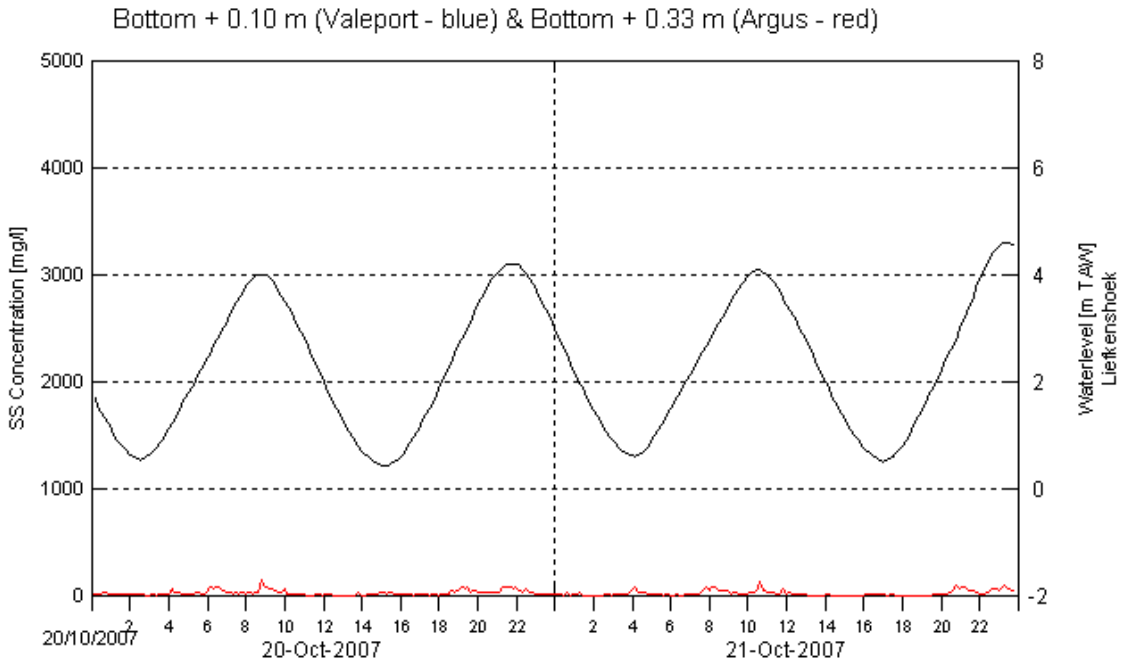
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

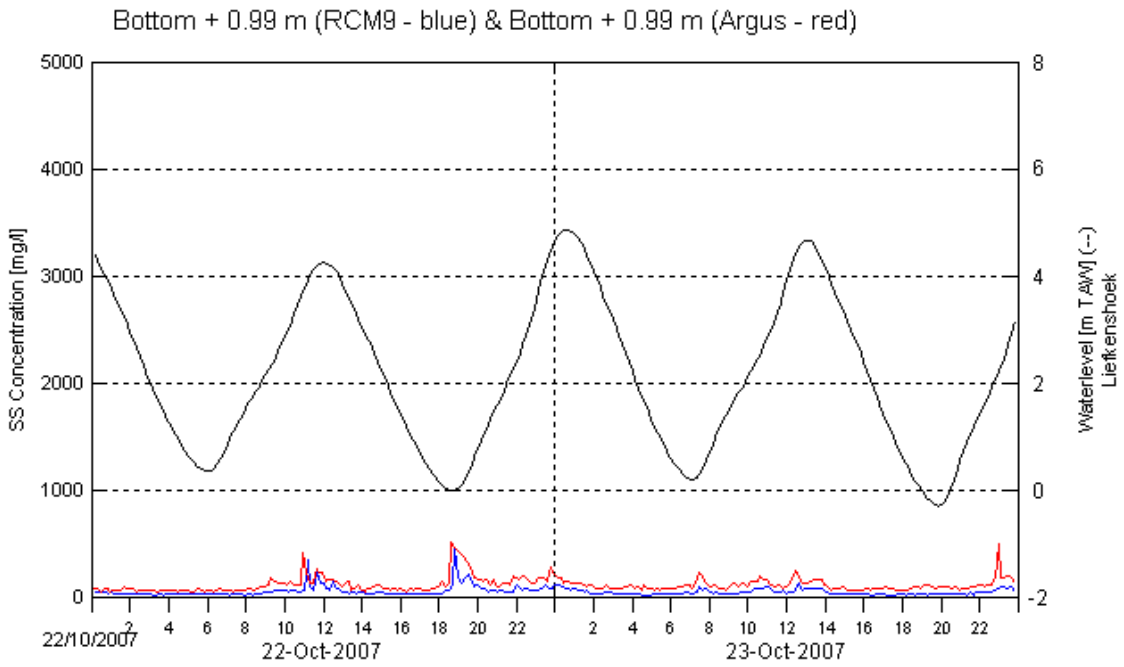
Date: 20/10/07 – 21/10/07

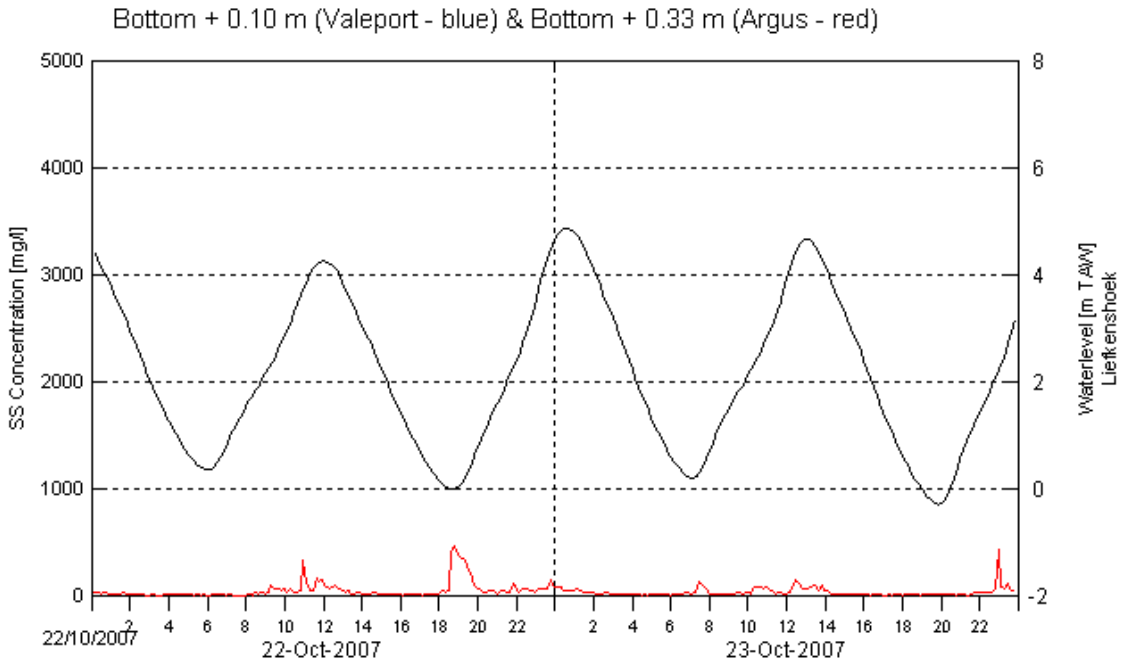
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

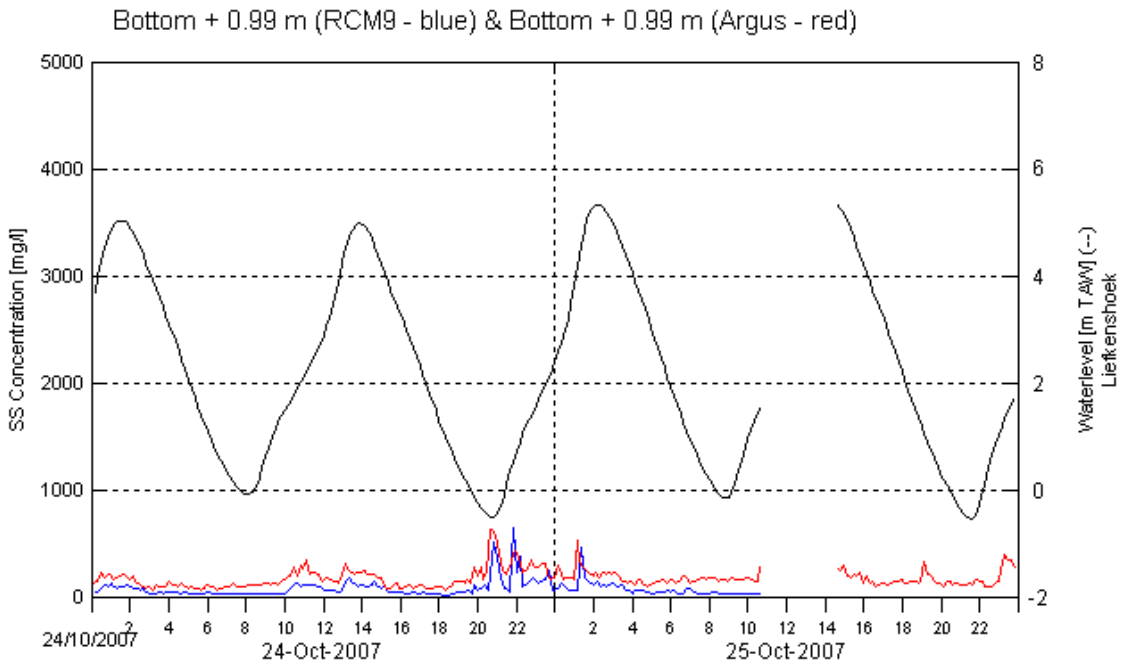
Date: 22/10/07 – 23/10/07

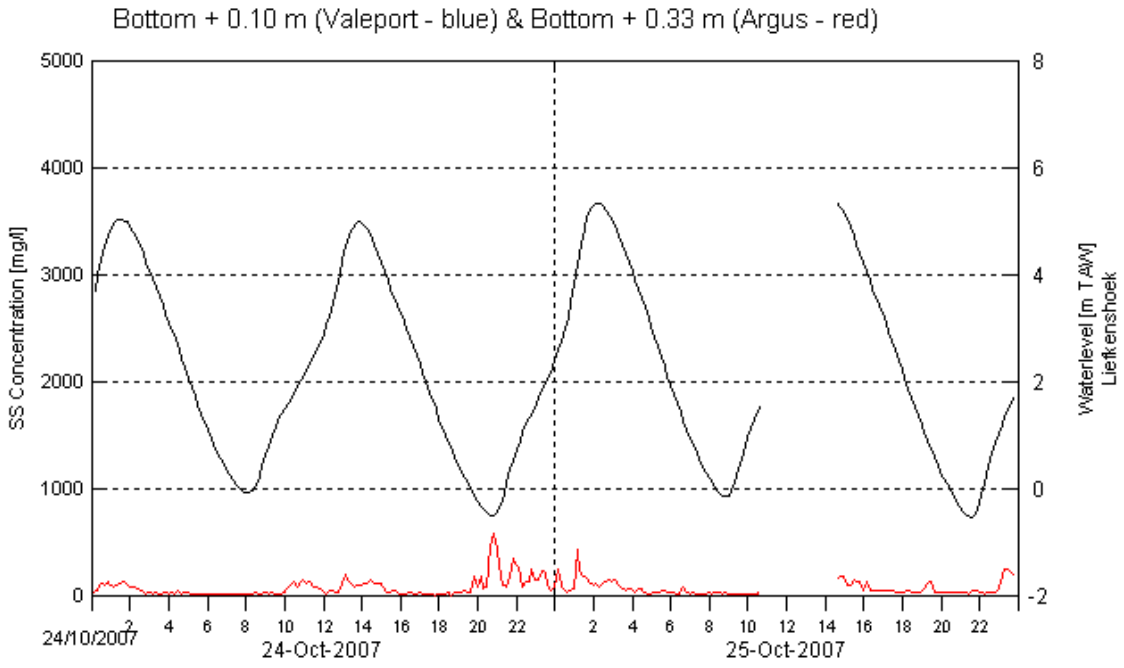
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

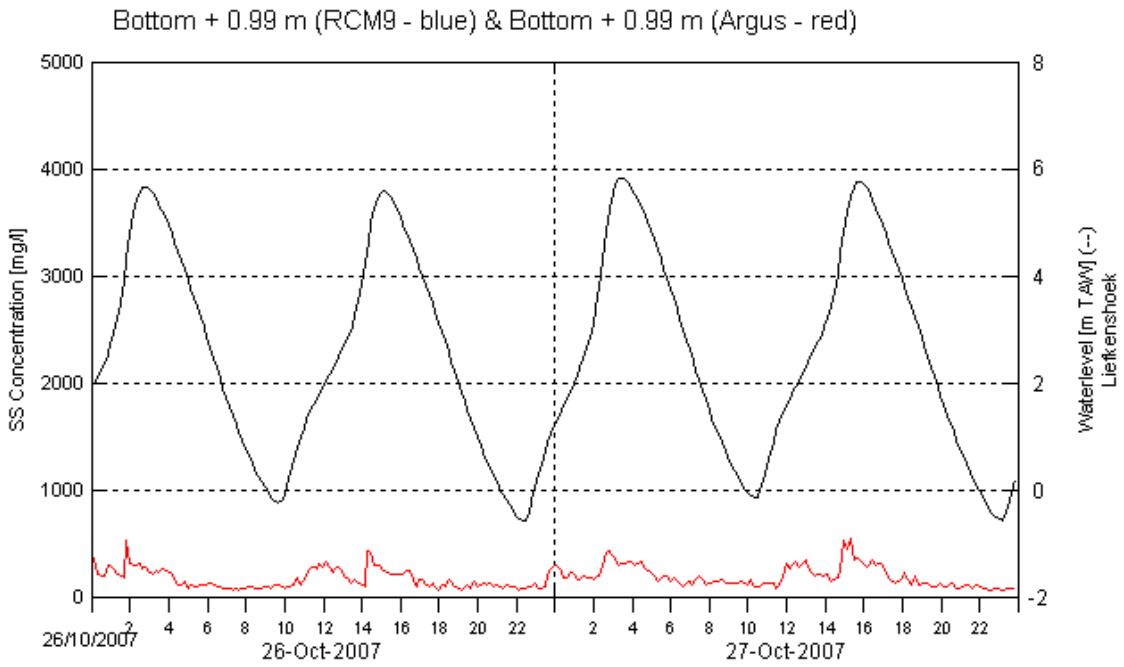
Date: 24/10/07 – 25/10/07

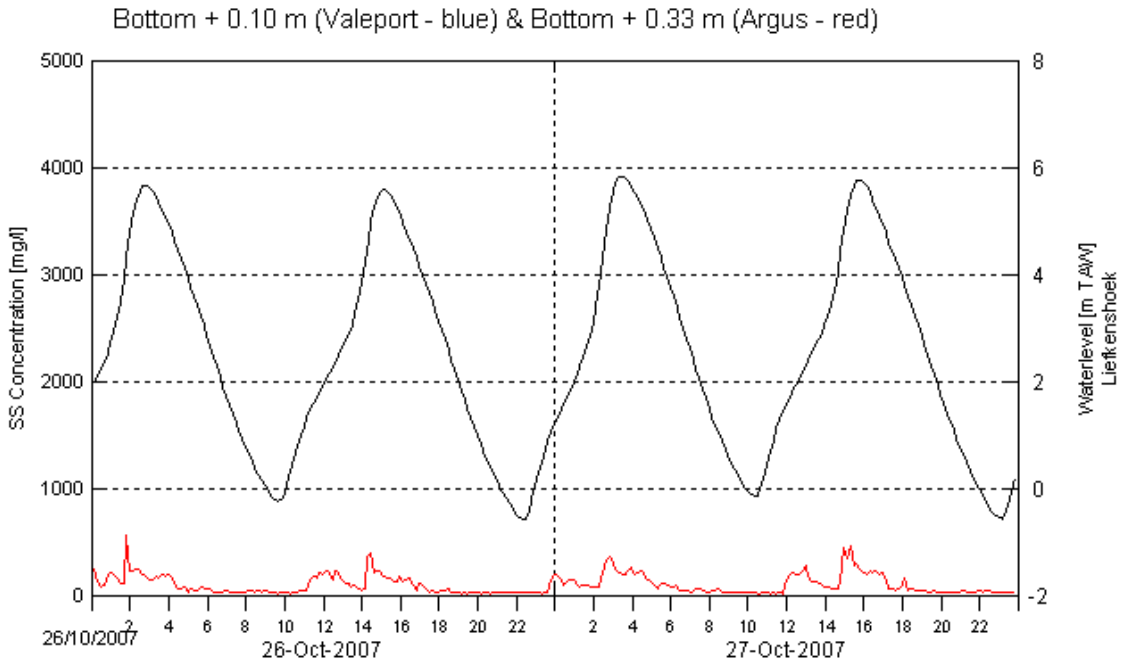
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

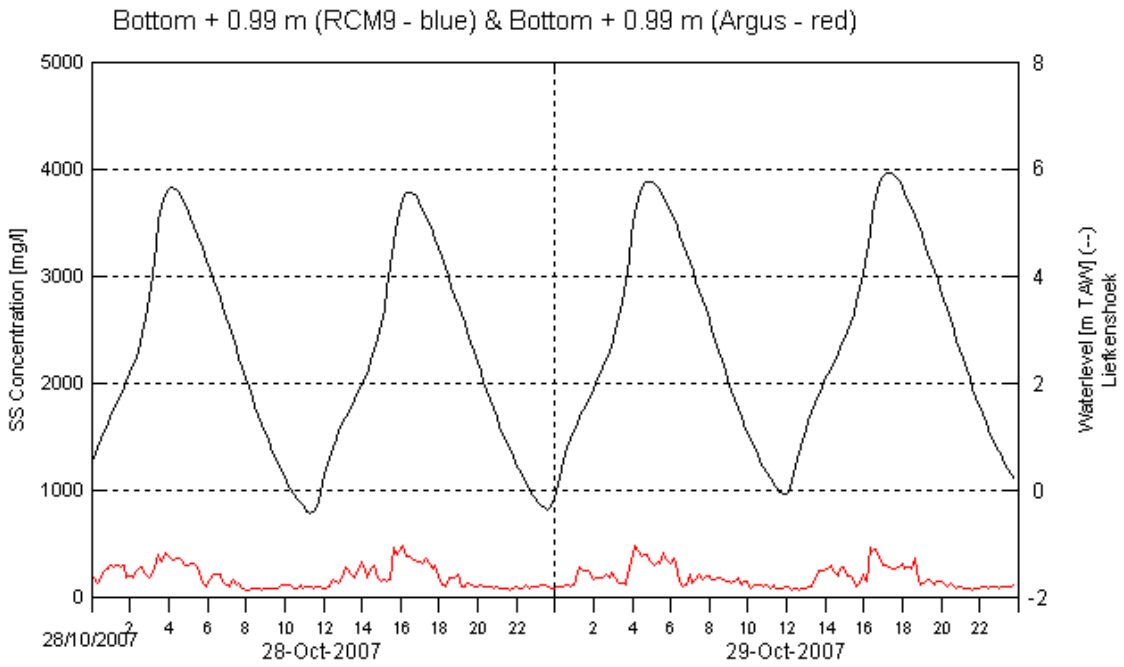
Date: 26/10/07 – 27/10/07

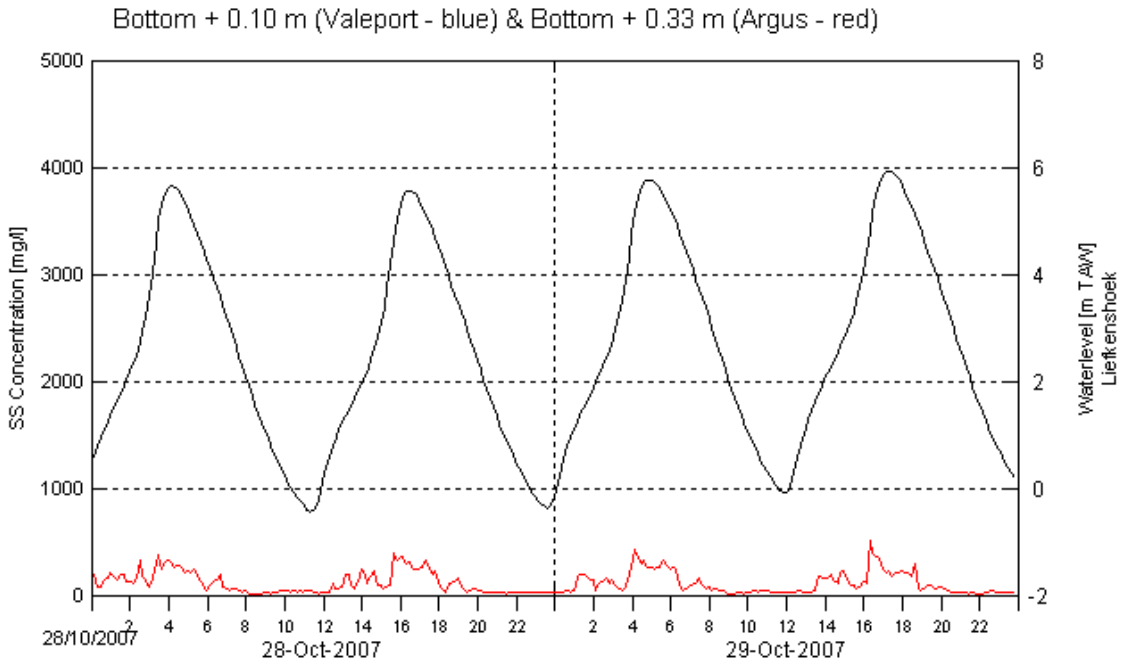
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

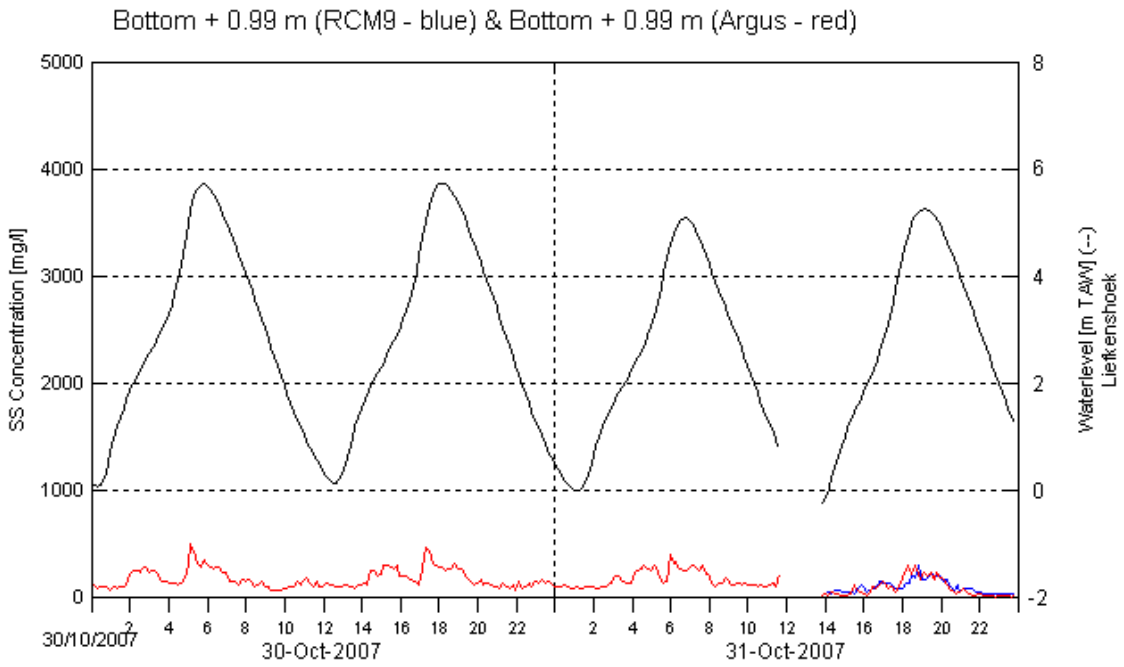
Date: 28/10/07 – 29/10/07

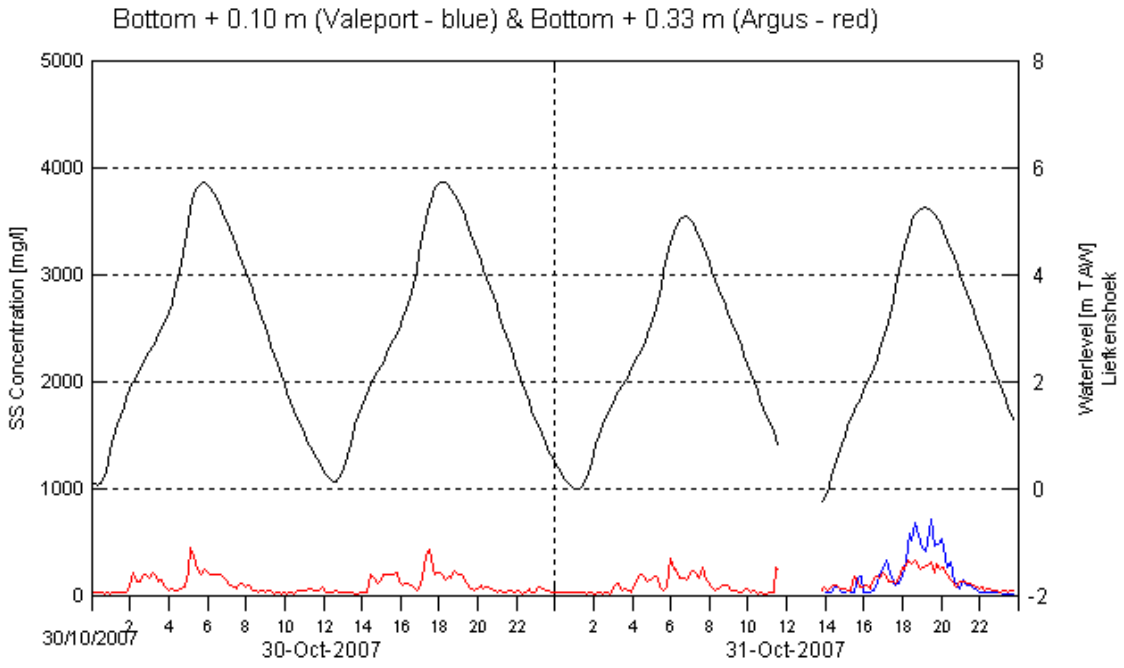
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

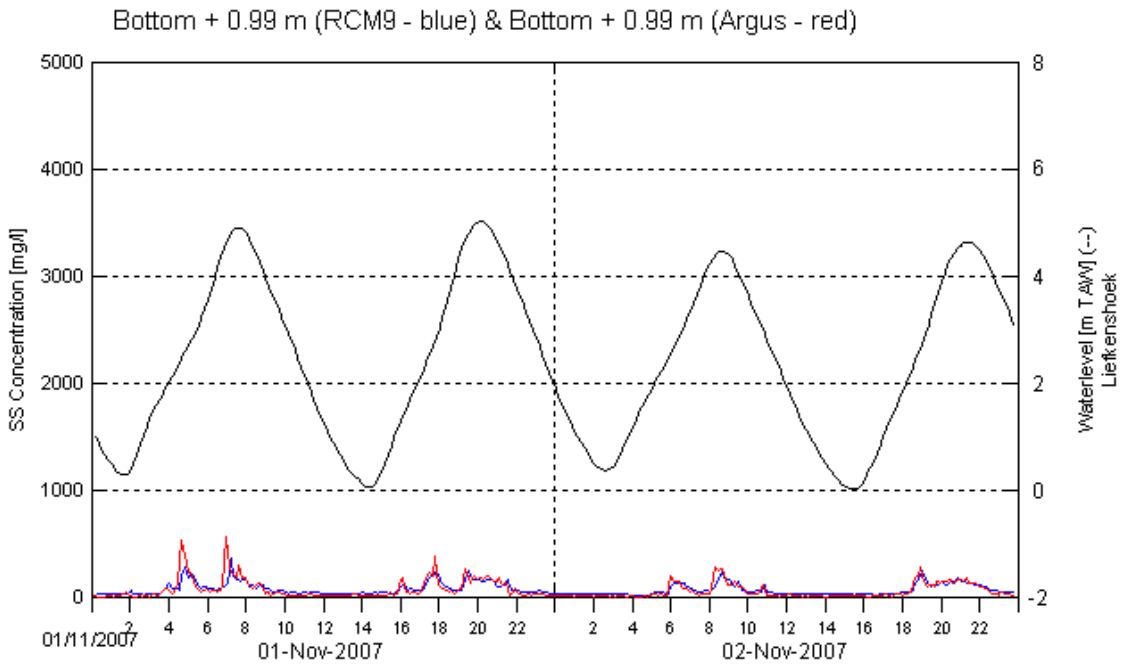
Date: 30/10/07 – 31/10/07

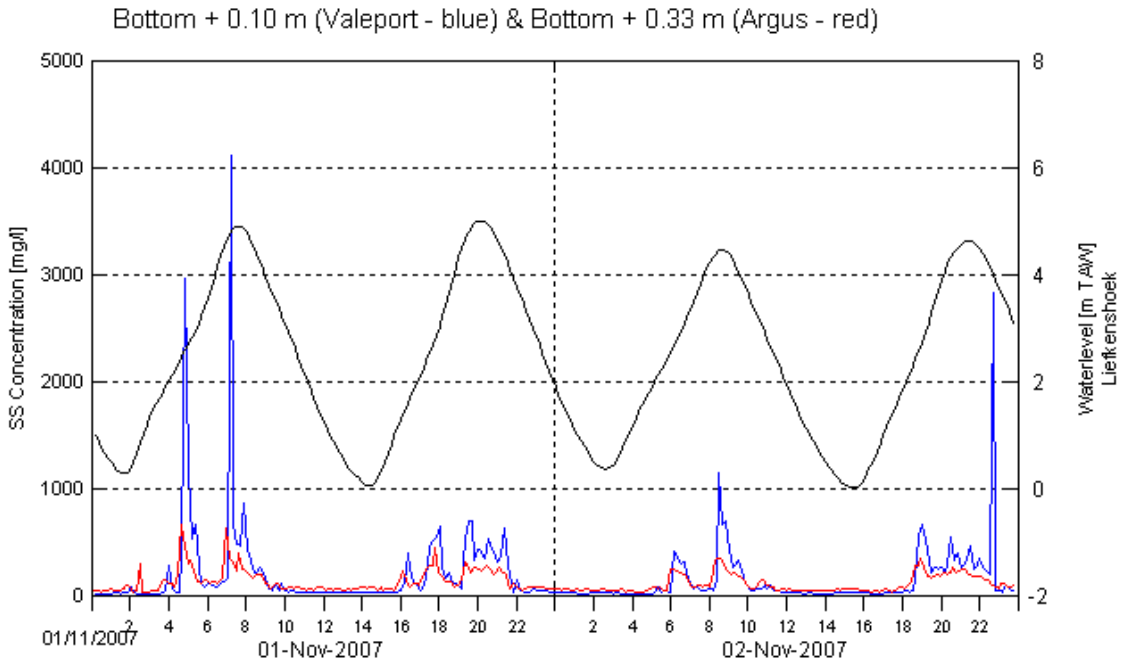
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

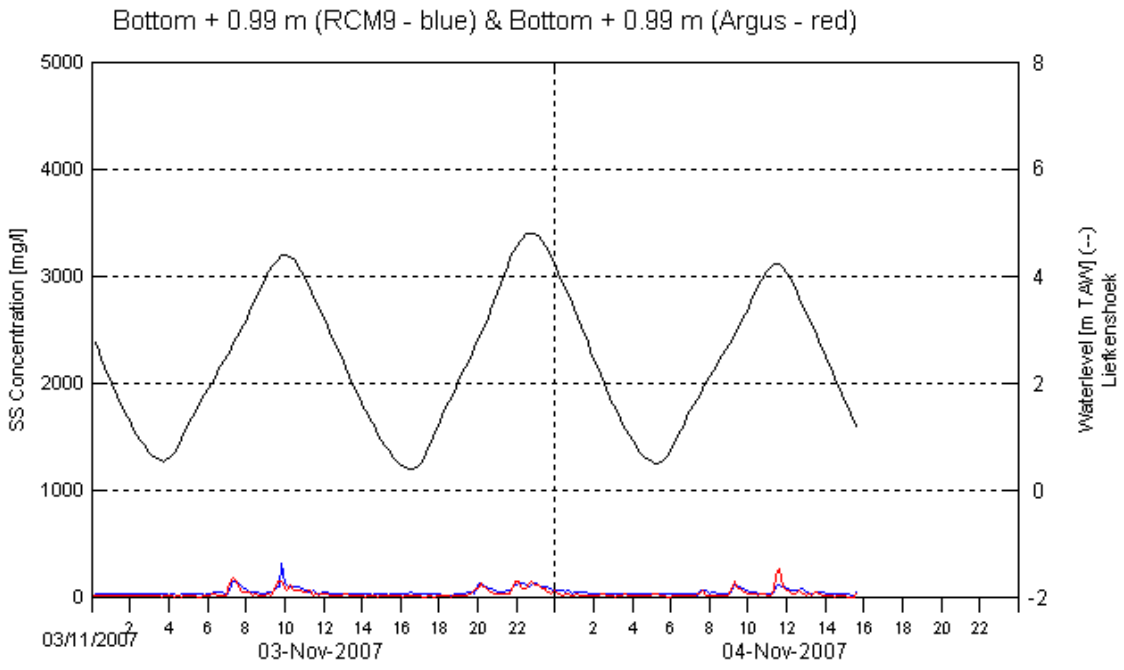
Date: 01/11/07 – 02/11/07

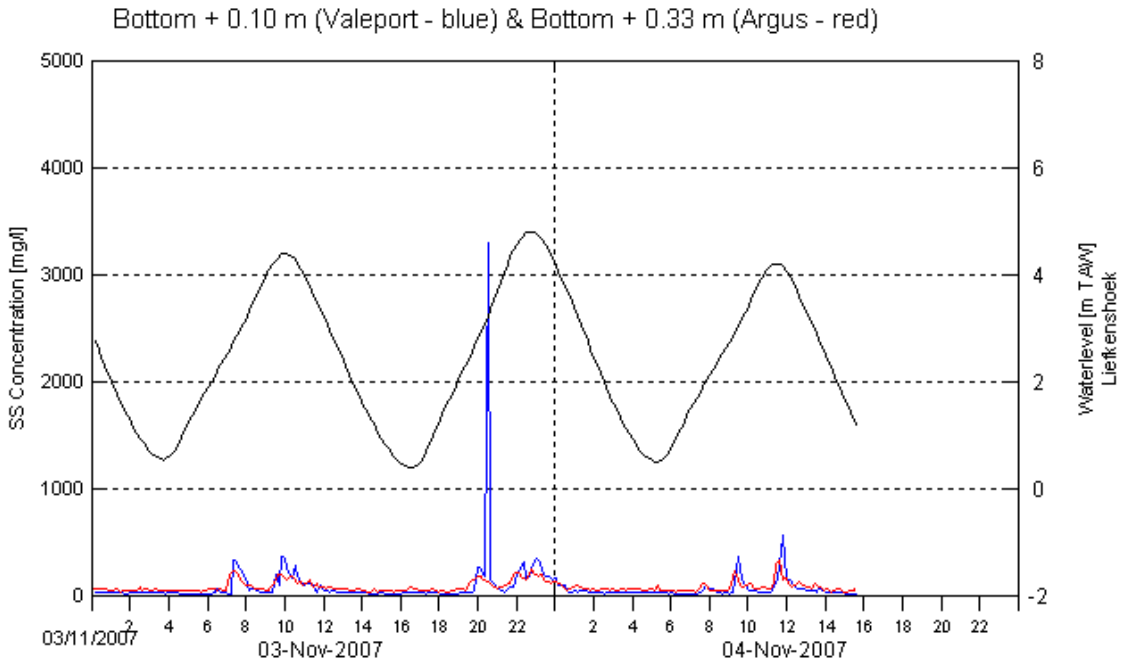
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

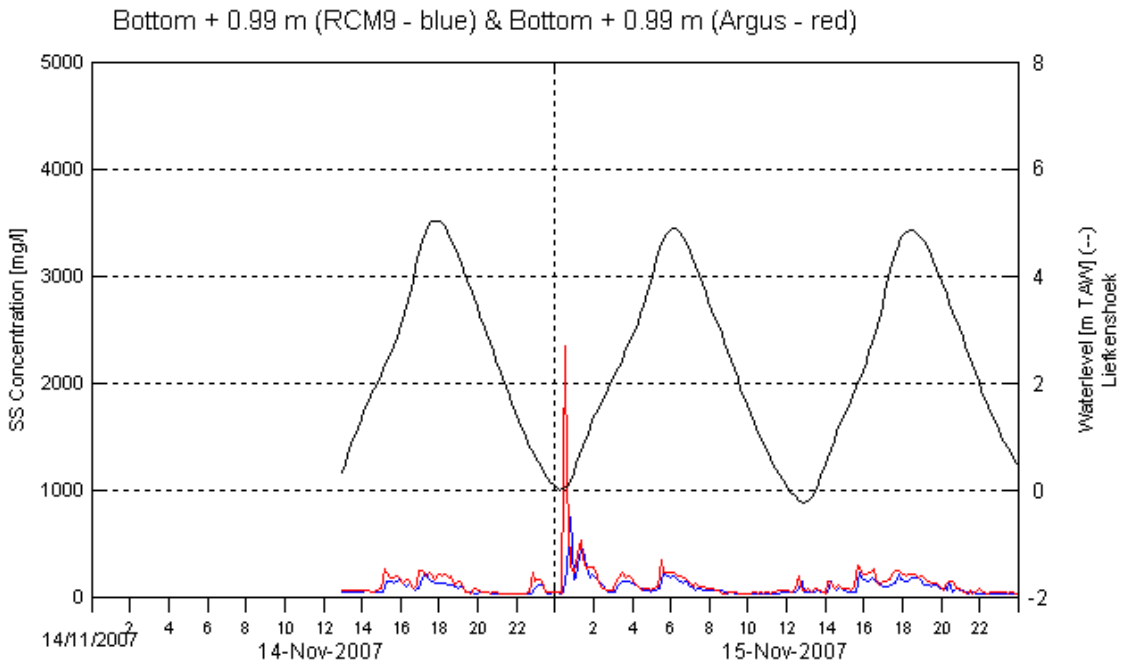
Date: 03/11/07 – 04/11/07

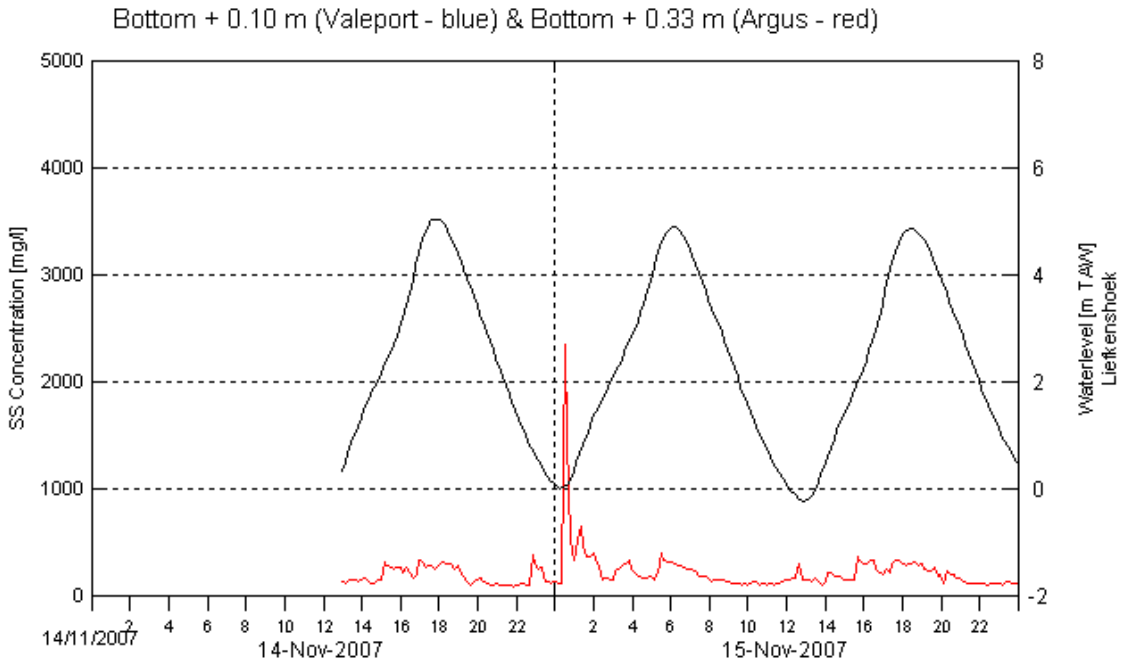
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

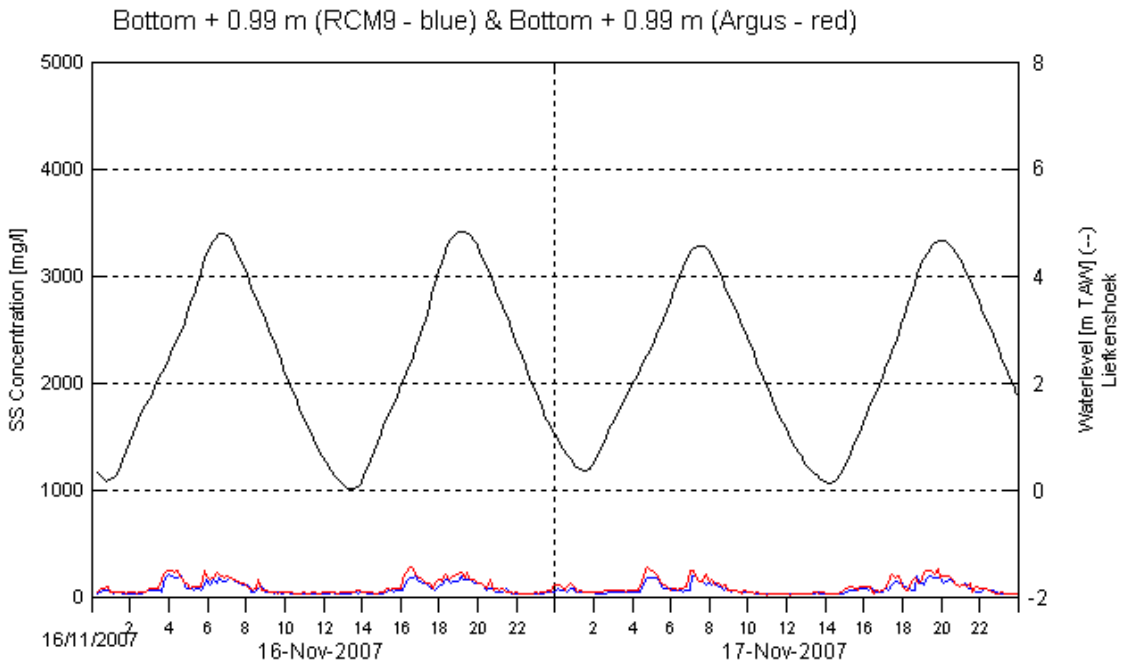
Date: 14/11/07 – 15/11/07

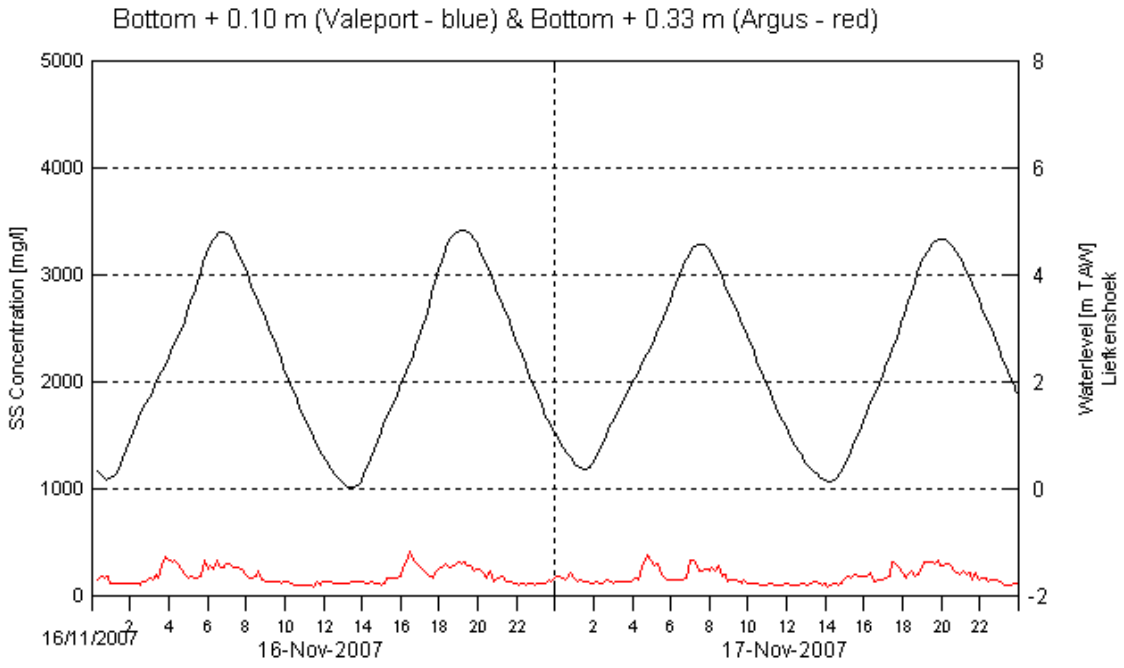
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

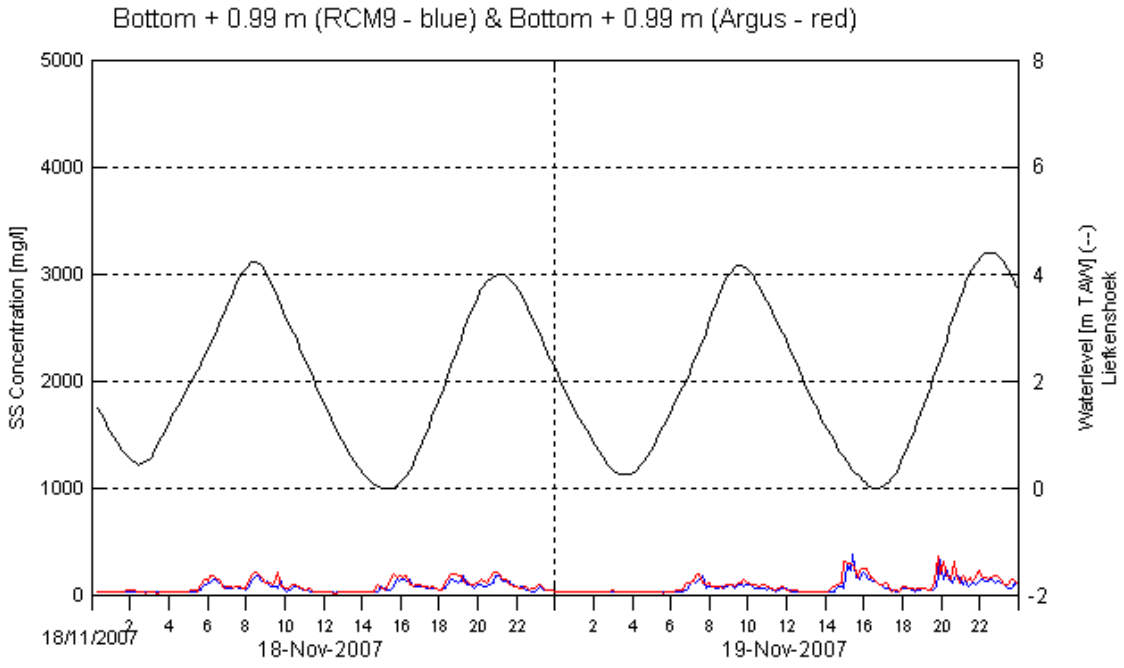
Date: 16/11/07 – 17/11/07

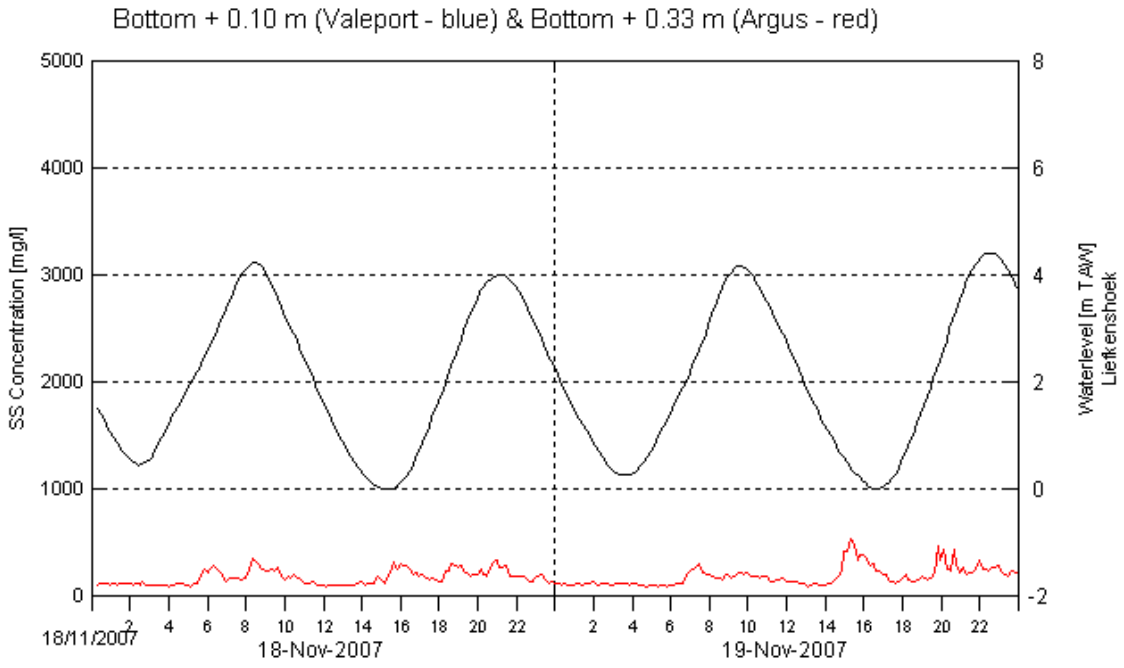
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

Date: 18/11/07 – 19/11/07

*Data processed by:* IMDC

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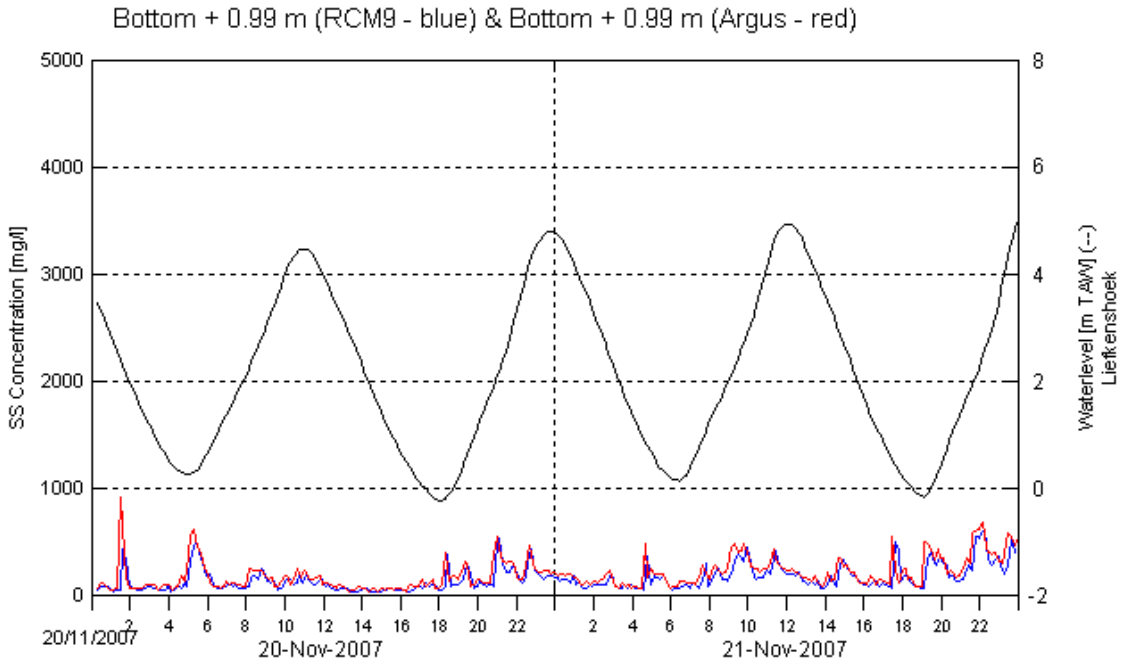
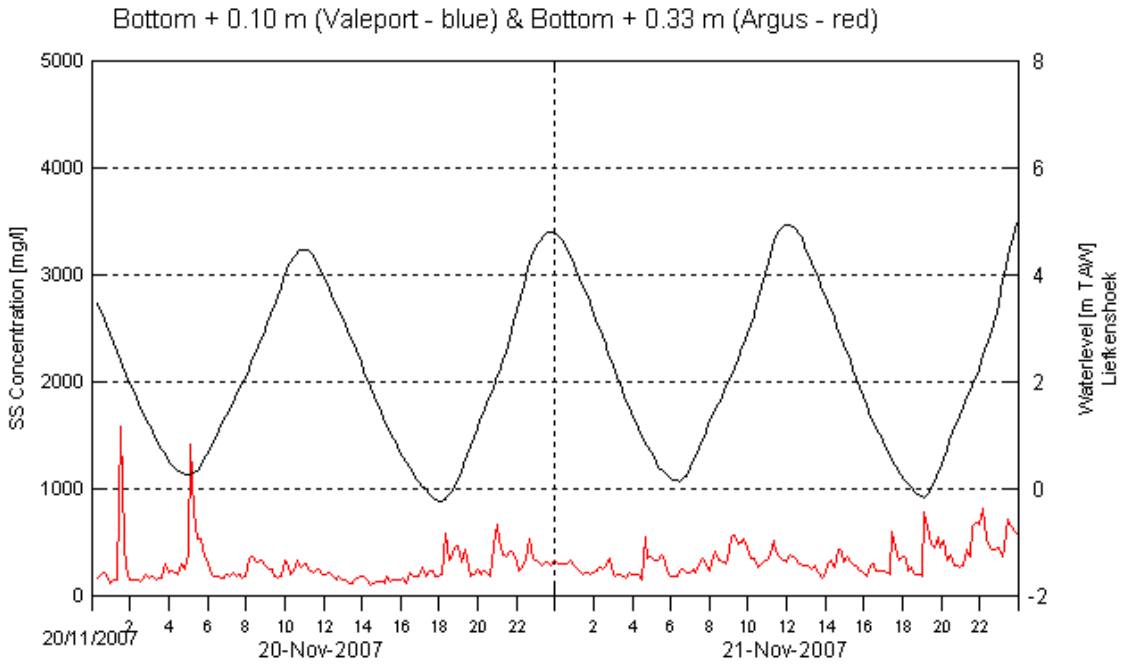



Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

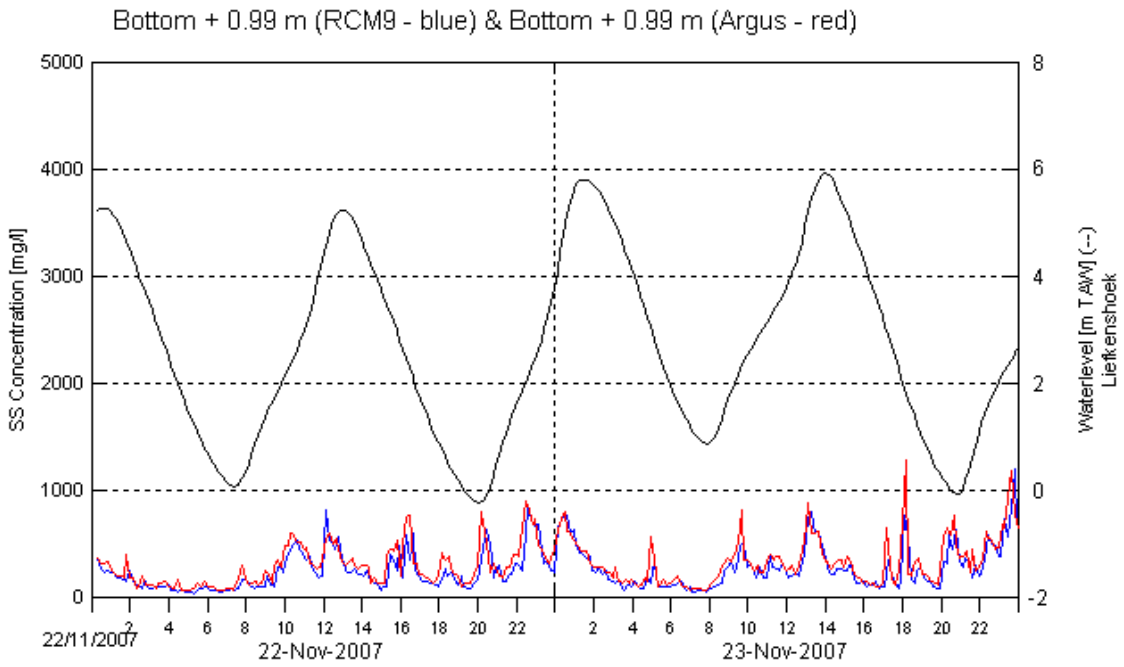
Date: 20/11/07 – 21/11/07

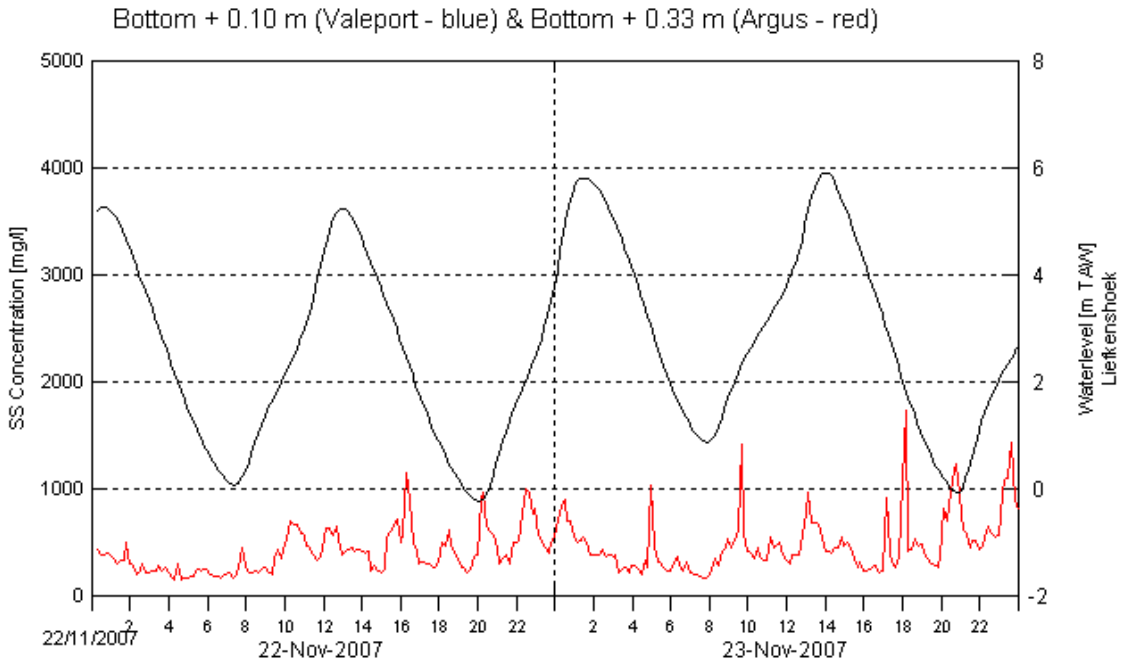
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

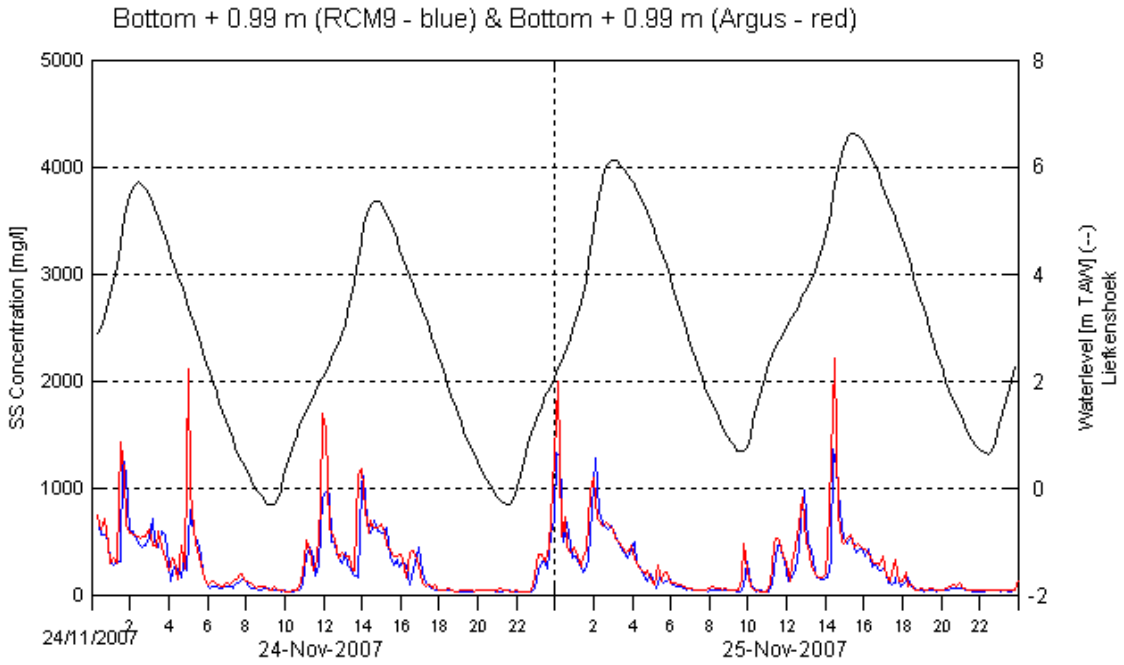
Date: 22/11/07 – 23/11/07

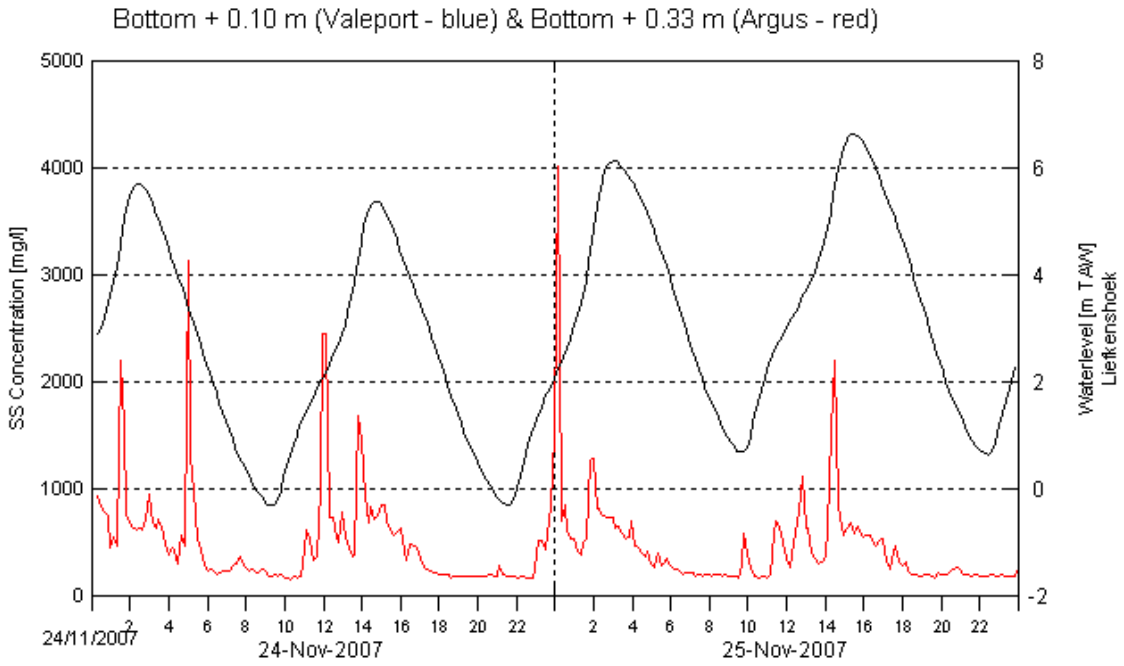
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

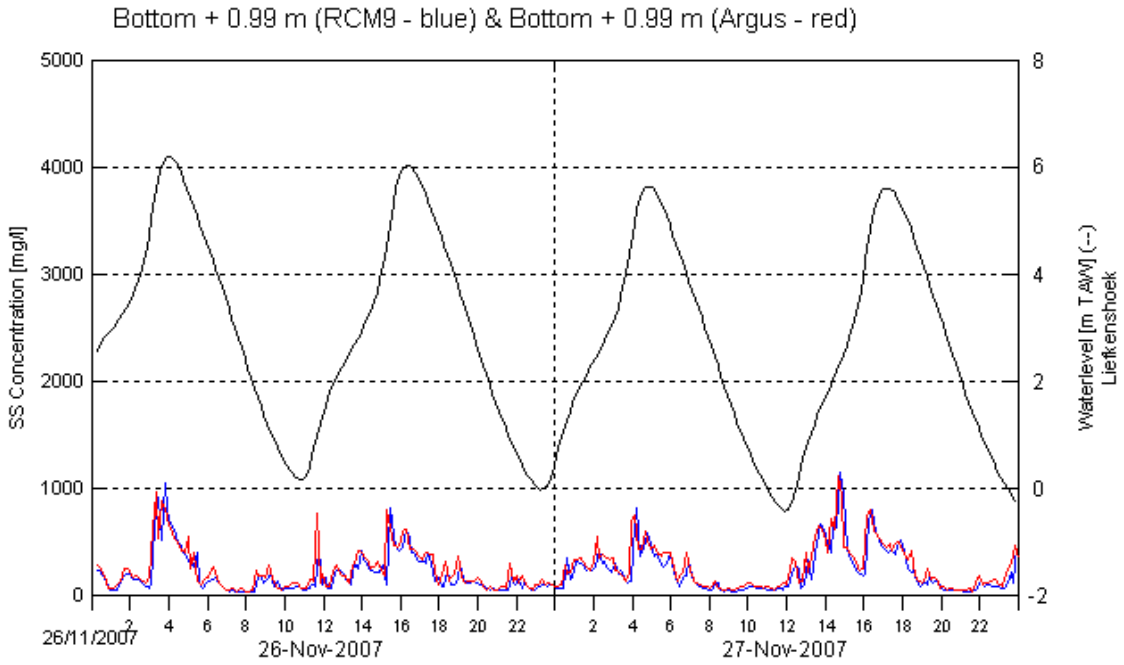
Date: 24/11/07 – 25/11/07

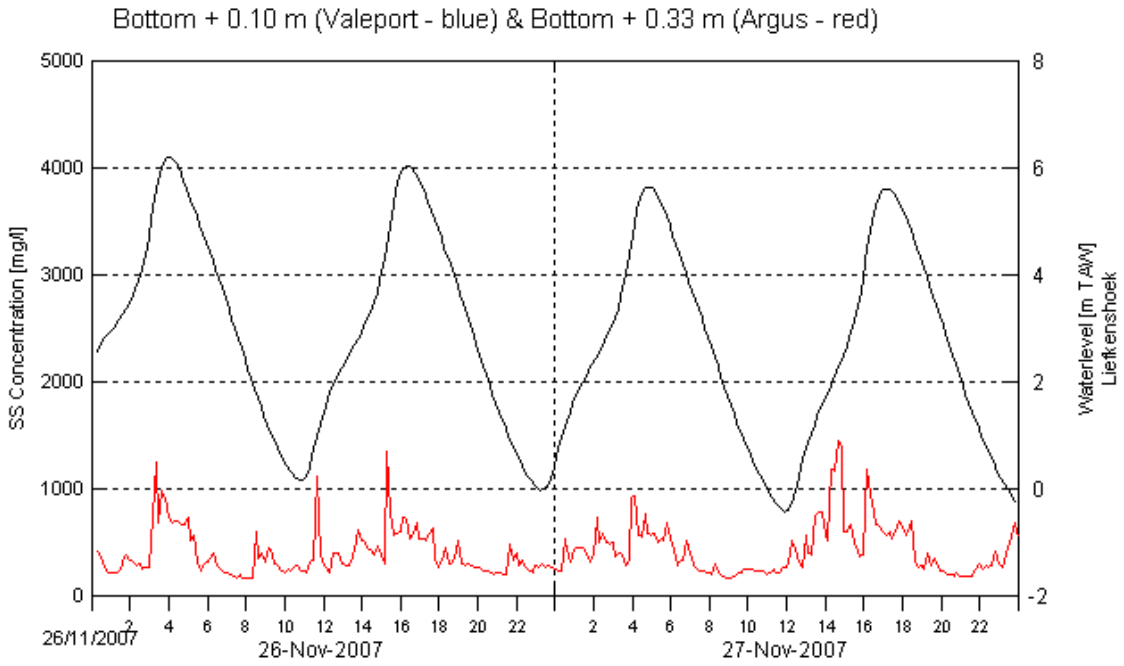
*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

Date: 26/11/07 – 27/11/07

*Data processed by:* IMDC

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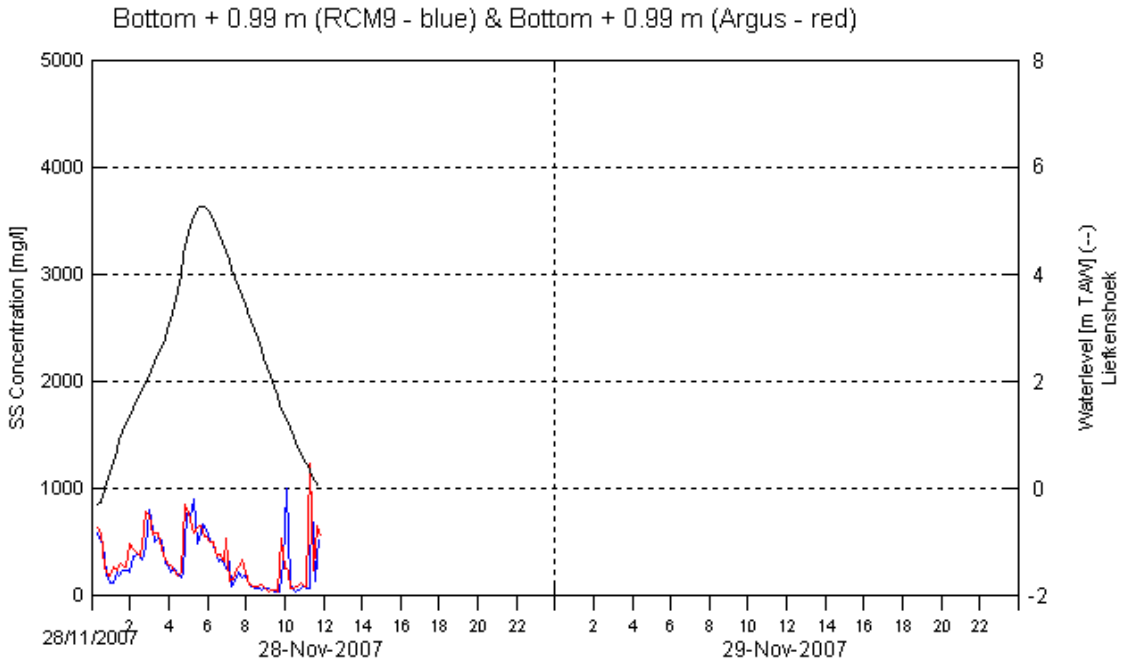
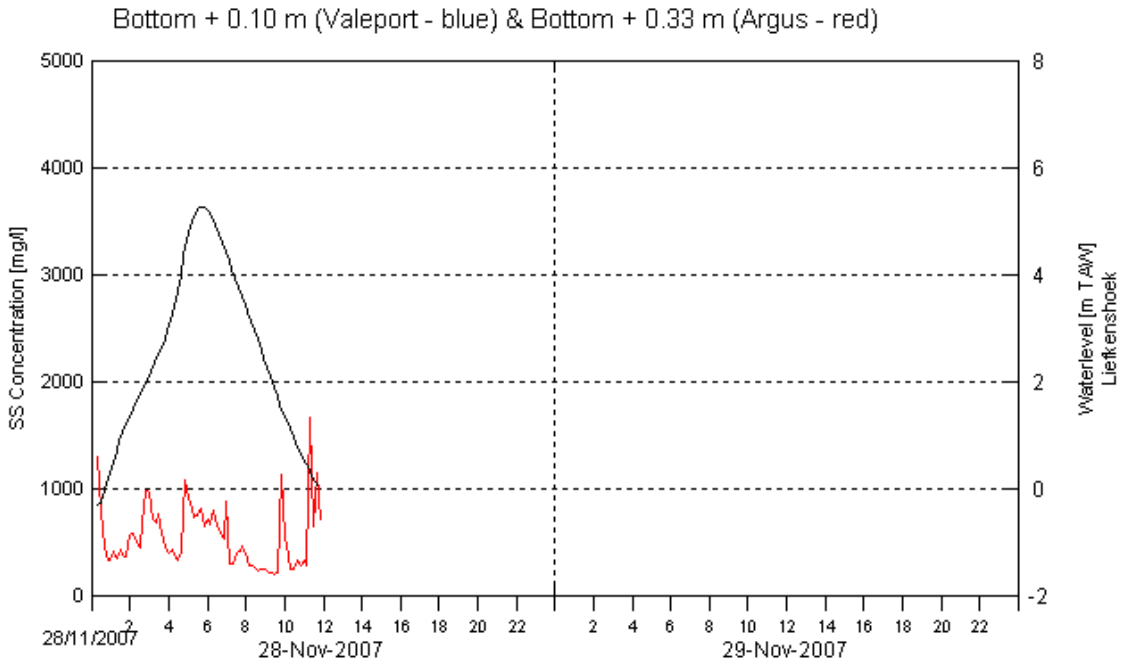
# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1 m and 0.1 m above the bottom for SS concentration

Location: Deurganckdok Sill

Date: 28/11/07

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

## Comparison of SS concentrations during each tidal phase

| Date | Tide No. | Phase | Tidal Diff [m] | OBS SS Concentration [mg/l] | | Argus SS Concentration [mg/l] | |
|---|---|---|---|---|---|---|---|
| | | | | UP (RCM9) | DOWN (Valeport) | UP | DOWN |
| 20071010 | 1 | flood | 4.5 | 64.3 | - | 116.8 | 641.9 |
| 20071010 | 1 | ebb | 5.6 | 39.5 | - | 81.3 | 612.2 |
| 20071011 | 2 | flood | 5.6 | 90.5 | - | 180 | 761.4 |
| 20071011 | 2 | ebb | 5.5 | 48.1 | - | 93.4 | 609 |
| 20071011 | 3 | flood | 5.4 | 85.7 | - | 162.8 | 663.3 |
| 20071011 | 3 | ebb | 5.4 | 44.6 | - | 86.2 | 591 |
| 20071012 | 4 | flood | 5.8 | 109.3 | - | 183 | 676.6 |
| 20071012 | 4 | ebb | 5.4 | 51.1 | - | 96.1 | 610.9 |
| 20071012 | 5 | flood | 5.3 | 86.3 | - | 147.7 | 646.5 |
| 20071012 | 5 | ebb | 5.8 | 41.4 | - | 76.5 | 587.9 |
| 20071013 | 6 | flood | 5.6 | 60.8 | - | 117 | 627 |
| 20071013 | 6 | ebb | 5.6 | 48.9 | - | 91 | 625 |
| 20071013 | 7 | flood | 5.5 | 65.3 | - | 120.5 | 634.2 |
| 20071013 | 7 | ebb | 5.6 | 44.8 | - | 79.9 | 601.7 |
| 20071014 | 8 | flood | 5.5 | 58.2 | - | 113.4 | 629.3 |
| 20071014 | 8 | ebb | 5.3 | 51.5 | - | 92.3 | 615.2 |
| 20071014 | 9 | flood | 5.5 | 55.8 | - | 110.4 | 619.7 |
| 20071014 | 9 | ebb | 5.5 | 51.8 | - | 90.4 | 618.1 |
| 20071015 | 10 | flood | 5.3 | 81.5 | - | 131.5 | 633.9 |
| 20071015 | 10 | ebb | 5.2 | 57.3 | - | 96.7 | 606.2 |
| 20071015 | 11 | flood | 5.3 | 88.7 | - | 167.4 | 658.2 |
| 20071016 | 11 | ebb | 5.3 | 41.6 | - | 78.5 | 573.4 |
| 20071016 | 12 | flood | 5.1 | 47.3 | - | 98.1 | 582.2 |
| 20071016 | 12 | ebb | 4.9 | 38.8 | - | 75.3 | 578.3 |
| 20071016 | 13 | flood | 5 | 53.8 | - | 102.6 | 599.9 |
| 20071017 | 13 | ebb | 4.9 | 41.9 | - | 76.2 | 585.1 |
| 20071017 | 14 | flood | 5 | 51 | - | 107 | 596.9 |
| 20071017 | 14 | ebb | 4.7 | 39.4 | - | 77.8 | 568.4 |
| 20071017 | 15 | flood | 4.7 | 55.7 | - | 117.3 | 611.6 |
| 20071018 | 15 | ebb | 4.5 | 46.2 | - | 88.7 | 601.4 |
| 20071018 | 16 | flood | 4.2 | 42.3 | - | 93.5 | 616.7 |
| 20071018 | 16 | ebb | 4.5 | 58.1 | - | 102.6 | 620 |
| 20071018 | 17 | flood | 4.3 | 63.7 | - | 125.8 | 653.5 |
| 20071019 | 17 | ebb | 4.4 | 33.7 | - | 73.6 | 615.6 |
| 20071019 | 18 | flood | 4 | 46 | - | 107.2 | 651.4 |
| 20071019 | 18 | ebb | 4.1 | 33.2 | - | 77.9 | 627.5 |
| 20071019 | 19 | flood | 4.1 | 44.4 | - | 114.4 | 681.7 |
| 20071020 | 19 | ebb | 3.9 | 38.3 | - | 91.6 | 721.3 |
| 20071020 | 20 | flood | 3.5 | 40.1 | - | 114.7 | 778.1 |
| 20071020 | 20 | ebb | 3.6 | 27.7 | - | 93.6 | 759.4 |
| 20071020 | 21 | flood | 3.8 | 40.7 | - | 119.3 | 845.8 |
| 20071021 | 21 | ebb | 3.6 | 28.6 | - | 92.2 | 996.4 |
| 20071021 | 22 | flood | 3.4 | 38.3 | - | 123.4 | 979.8 |
| 20071021 | 22 | ebb | 3.6 | 25.8 | - | 98.8 | 924.2 |
| 20071021 | 23 | flood | 4.1 | 37.4 | - | 149.9 | 825.3 |

# Comparison of SS concentrations during each tidal phase

| Date | Tide No. | Phase | Tidal Diff [m] | OBS SS Concentration [mg/l] | | Argus SS Concentration [mg/l] | |
|---|---|---|---|---|---|---|---|
| | | | | UP (RCM9) | DOWN (Valeport) | UP | DOWN |
| 20071022 | 23 | ebb | 4.2 | 28.3 | - | 145.8 | 696.6 |
| 20071022 | 24 | flood | 3.9 | 54.1 | - | 230.2 | 763.8 |
| 20071022 | 24 | ebb | 4.3 | 37.5 | - | 218.2 | 745.8 |
| 20071023 | 25 | flood | 4.9 | 92.9 | - | 323.8 | 846.6 |
| 20071023 | 25 | ebb | 4.7 | 30.1 | - | 195.3 | 633.2 |
| 20071023 | 26 | flood | 4.5 | 50.7 | - | 294.1 | 676.7 |
| 20071023 | 26 | ebb | 5 | 27.5 | - | 226.3 | 637.8 |
| 20071024 | 27 | flood | 5.3 | 53.5 | - | 317 | 685.5 |
| 20071024 | 27 | ebb | 5.1 | 38.3 | - | 283.6 | 634.8 |
| 20071024 | 28 | flood | 5.1 | 69.3 | - | 394.1 | 708.2 |
| 20071024 | 28 | ebb | 5.5 | 55 | - | 372.1 | 665.9 |
| 20071025 | 29 | flood | 5.8 | 172 | - | 507.2 | 823.8 |
| 20071025 | 29 | ebb | 5.5 | 52.7 | - | 346.8 | 657.7 |
| 20071026 | 30 | flood | 5.8 | 28.5 | - | 402.5 | 697.8 |
| 20071026 | 30 | ebb | 5.9 | - | - | 376.2 | 680.6 |
| 20071026 | 31 | flood | 5.8 | - | - | 454.4 | 753.1 |
| 20071026 | 31 | ebb | 6.1 | - | - | 370.9 | 677 |
| 20071027 | 32 | flood | 6.4 | - | - | 448.3 | 752.3 |
| 20071027 | 32 | ebb | 6 | - | - | 400.2 | 719.9 |
| 20071027 | 33 | flood | 5.9 | - | - | 464.2 | 780.4 |
| 20071027 | 33 | ebb | 6.3 | - | - | 394.9 | 703.5 |
| 20071028 | 34 | flood | 6.2 | - | - | 495.7 | 821.3 |
| 20071028 | 34 | ebb | 6.1 | - | - | 411.7 | 722.8 |
| 20071028 | 35 | flood | 6 | - | - | 481.5 | 818.1 |
| 20071028 | 35 | ebb | 5.9 | - | - | 395.8 | 748.6 |
| 20071029 | 36 | flood | 6.1 | - | - | 454.8 | 804.7 |
| 20071029 | 36 | ebb | 5.8 | - | - | 403.9 | 739.6 |
| 20071029 | 37 | flood | 6 | - | - | 450.9 | 795.8 |
| 20071030 | 37 | ebb | 5.9 | - | - | 371.3 | 714.7 |
| 20071030 | 38 | flood | 5.6 | - | - | 425.2 | 777.8 |
| 20071030 | 38 | ebb | 5.6 | - | - | 375.1 | 719.3 |
| 20071030 | 39 | flood | 5.6 | - | - | 440 | 791.4 |
| 20071031 | 39 | ebb | 5.7 | - | - | 370.7 | 715.9 |
| 20071031 | 40 | flood | 5.1 | - | - | 415.4 | 766.9 |
| 20071031 | 40 | ebb | 5.3 | 23.3 | 21.3 | 376.3 | 916.2 |
| 20071031 | 41 | flood | 5.4 | 93.2 | 181.4 | 75.6 | 3678.6 |
| 20071101 | 41 | ebb | 4.9 | 61 | 122.4 | 34.4 | 1823 |
| 20071101 | 42 | flood | 4.6 | 93.1 | 366.1 | 157.6 | 2937.3 |
| 20071101 | 42 | ebb | 4.8 | 51.1 | 101.5 | 27.9 | 2108.7 |
| 20071101 | 43 | flood | 5 | 94.4 | 219.4 | 77.6 | 3804.7 |
| 20071102 | 43 | ebb | 4.6 | 55 | 115.9 | 30.6 | 3395.1 |
| 20071102 | 44 | flood | 4.1 | 56.4 | 119.9 | 42.5 | 3712.8 |
| 20071102 | 44 | ebb | 4.4 | 43.9 | 84.4 | 19.8 | 3147.9 |
| 20071102 | 45 | flood | 4.6 | 78.8 | 171.6 | 61.5 | 3706.1 |
| 20071103 | 45 | ebb | 4.1 | 41.5 | 148.1 | 16.7 | 2455.1 |
| 20071103 | 46 | flood | 3.8 | 51.6 | 73.5 | 23.5 | 3809.2 |

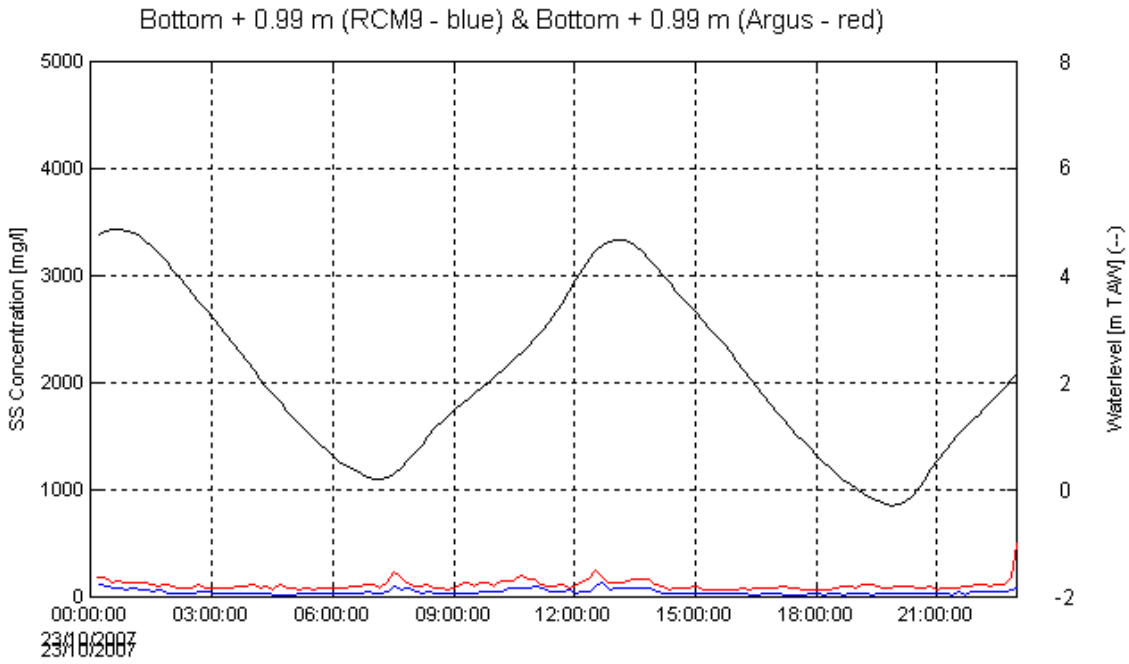
# Comparison of SS concentrations during each tidal phase

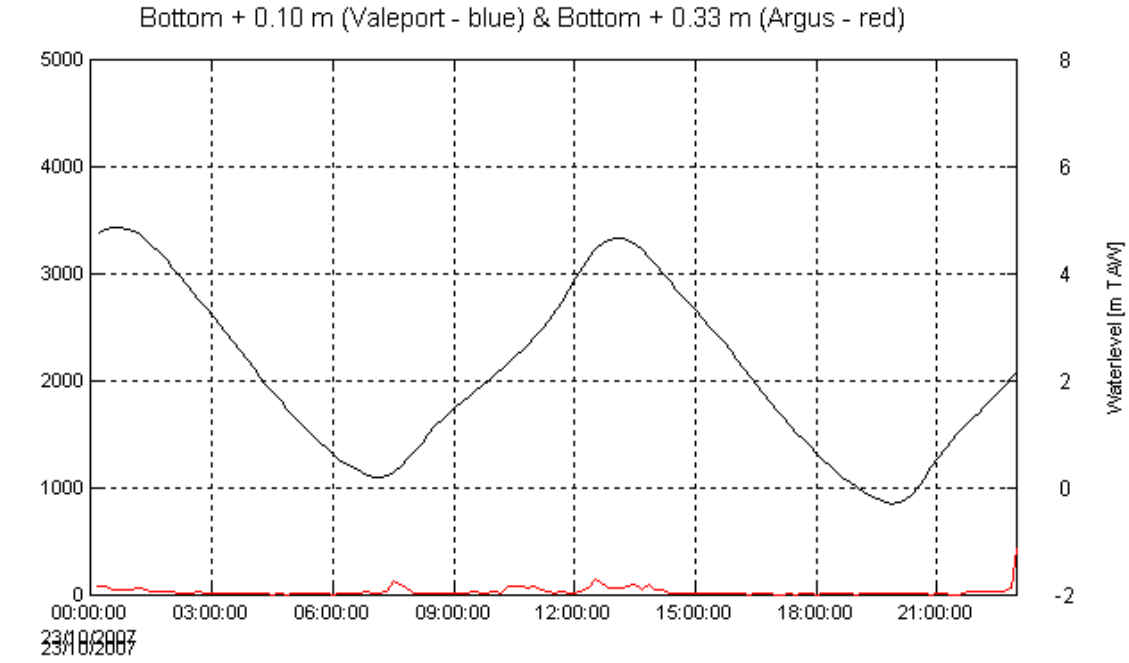
| Date | Tide No. | Phase | Tidal Diff [m] | OBS SS Concentration [mg/l] | | Argus SS Concentration [mg/l] | |
|---|---|---|---|---|---|---|---|
| | | | | UP (RCM9) | DOWN (Valeport) | UP | DOWN |
| 20071103 | 46 | ebb | 4 | 34.6 | 52.7 | 10 | 3910.2 |
| 20071103 | 47 | flood | 4.4 | 50.4 | 162.2 | 27.5 | 3848.9 |
| 20071104 | 47 | ebb | 4.3 | 42.7 | 69.2 | 16.2 | 3042.4 |
| 20071104 | 48 | flood | 3.7 | 36.1 | 43.8 | 12.4 | 3263.9 |
| 20071115 | 48 | ebb | 4.2 | 62.9 | 145.1 | 58.8 | 3832.3 |
| 20071115 | 49 | flood | 4.9 | 157.5 | 1536.1 | 236.9 | 4222 |
| 20071115 | 49 | ebb | 5.1 | 55.7 | 135.9 | 46.2 | 4200.1 |
| 20071115 | 50 | flood | 5.1 | 100.5 | 1478 | 107.2 | 4214.3 |
| 20071116 | 50 | ebb | 4.7 | 60.9 | 6007.4 | 48.7 | 4138.4 |
| 20071116 | 51 | flood | 4.6 | 88.5 | 7075.5 | 89.8 | 4167.1 |
| 20071116 | 51 | ebb | 4.8 | 53 | 5490.7 | 40.9 | 4044.2 |
| 20071116 | 52 | flood | 4.8 | 87.9 | 4388.3 | 94.1 | 4153.5 |
| 20071117 | 52 | ebb | 4.5 | 61 | 2752.7 | 51.3 | 4091.9 |
| 20071117 | 53 | flood | 4.2 | 74.7 | 3339.1 | 81.7 | 4193.9 |
| 20071117 | 53 | ebb | 4.4 | 45.5 | 2898.1 | 39.2 | 4122.8 |
| 20071117 | 54 | flood | 4.5 | 86.9 | 3877.2 | 87.3 | 4044.5 |
| 20071118 | 54 | ebb | 4.2 | 52.7 | 6082.9 | 38.2 | 4140.2 |
| 20071118 | 55 | flood | 3.8 | 53.3 | 2289.2 | 46.9 | 4168.4 |
| 20071118 | 55 | ebb | 4.2 | 47.6 | 2098.7 | 35.2 | 4132.4 |
| 20071118 | 56 | flood | 4 | 94.5 | 2304.9 | 92.9 | 4174.8 |
| 20071119 | 56 | ebb | 3.7 | 41.2 | 1524.3 | 27 | 4071.6 |
| 20071119 | 57 | flood | 3.9 | 53.6 | 1496.1 | 41.9 | 4091.6 |
| 20071119 | 57 | ebb | 4.2 | 79.5 | 1551.4 | 69.2 | 4037.7 |
| 20071119 | 58 | flood | 4.4 | 93.5 | 1290.5 | 92 | 4100.4 |
| 20071120 | 58 | ebb | 4.1 | 83 | 995.2 | 83.5 | 3641.6 |
| 20071120 | 59 | flood | 4.2 | 149.2 | 2397.7 | 145.5 | 3893.9 |
| 20071120 | 59 | ebb | 4.7 | 61.5 | 582.7 | 44.6 | 3826.5 |
| 20071120 | 60 | flood | 5 | 181.7 | 2297.3 | 185.6 | 3932.2 |
| 20071121 | 60 | ebb | 4.6 | 107.7 | 802.2 | 100.7 | 3281.4 |
| 20071121 | 61 | flood | 4.8 | 203.1 | 1353.7 | 219.4 | 3563.5 |
| 20071121 | 61 | ebb | 5.1 | 142.6 | 176.1 | 131 | 3938.3 |
| 20071122 | 62 | flood | 5.4 | 319.8 | 18.4 | 343.3 | 2981.4 |
| 20071122 | 62 | ebb | 5.2 | 96.7 | 17.3 | 87.2 | 2932.1 |
| 20071122 | 63 | flood | 5.2 | 282.1 | 17 | 294.2 | 3376.4 |
| 20071122 | 63 | ebb | 5.5 | 204.6 | 15.9 | 216.8 | 3631.7 |
| 20071123 | 64 | flood | 6 | 436.6 | 15.5 | 463.3 | 3577.8 |
| 20071123 | 64 | ebb | 4.9 | 140.6 | 15.3 | 129.7 | 3443.2 |
| 20071123 | 65 | flood | 5 | 304.9 | 15.2 | 332.4 | 3859.9 |
| 20071123 | 65 | ebb | 6 | 228.1 | 15.4 | 253.5 | 3745.6 |
| 20071124 | 66 | flood | 5.8 | 518.4 | 15.1 | 547.4 | 3493.5 |
| 20071124 | 66 | ebb | 6 | 241 | 15.1 | 254.4 | 3968.3 |
| 20071124 | 67 | flood | 5.7 | 366.8 | 15 | 448.6 | 3902.2 |
| 20071124 | 67 | ebb | 5.7 | 157.1 | 14.9 | 140.5 | 2941.4 |
| 20071125 | 68 | flood | 6.4 | 430.6 | 14.9 | 459 | 4072.2 |
| 20071125 | 68 | ebb | 5.4 | 136.5 | 14.9 | 122.3 | 3422.6 |
| 20071125 | 69 | flood | 5.9 | 354 | 14.9 | 393.1 | 4187.3 |

## Comparison of SS concentrations during each tidal phase

| Date | Tide No. | Phase | Tidal Diff [m] | OBS SS Concentration [mg/l] | | Argus SS Concentration [mg/l] | |
|---|---|---|---|---|---|---|---|
| | | | | UP (RCM9) | DOWN (Valeport) | UP | DOWN |
| 20071125 | 69 | ebb | 6 | 122.8 | 14.8 | 115.6 | 3222.2 |
| 20071126 | 70 | flood | 5.5 | 200.5 | 14.8 | 210.4 | 4025.6 |
| 20071126 | 70 | ebb | 6 | 156.9 | 14.9 | 133.9 | 3875.2 |
| 20071126 | 71 | flood | 5.8 | 256.6 | 24.2 | 274.5 | 3614.5 |
| 20071126 | 71 | ebb | 6 | 146.5 | 14.9 | 144.2 | 3558.1 |
| 20071127 | 72 | flood | 5.7 | 254.9 | 15.6 | 277.4 | 3341.8 |
| 20071127 | 72 | ebb | 6.1 | 126.1 | 14.8 | 112.2 | 4194.7 |
| 20071127 | 73 | flood | 6 | 421.5 | 14.8 | 433.5 | 3312 |
| 20071128 | 73 | ebb | 5.9 | 151.6 | 14.8 | 147 | 3767.8 |
| 20071128 | 74 | flood | 5.6 | 389.9 | 14.8 | 397.2 | 3548.6 |

# 11283 Accretion Deurganckdok – Near bed continuous monitoring – Autumn 2007




Comparison of RCM9 & Valeport (blue) to Argus sensors (red) at 1m and 0.1 m above the bottom for SS concentration

| Location: | Date: |
|---|---|
| Deurganckdok Sill | Avg Tide 18/10 – 19/10 |

*Data processed by:* IMDC

*In association with:* WL | delft hydraulics, GEMS International

*I/RA/11283/07.093/MSA*

# APPENDIX F.

# HCBS2 REPORTS

| Report | Description |
|---|---|
| **Ambient Conditions Lower Sea Scheldt** | |
| 5.3 | Overview of ambient conditions in the river Scheldt – January-June 2006 (I/RA/11291/06.088/MSA) |
| 5.4 | Overview of ambient conditions in the river Scheldt – July-December 2006 (I/RA/11291/06.089/MSA) |
| ~~5.5~~ | ~~Overview of ambient conditions in the river Scheldt : RCM-9 buoy 84 & 97 (1/1/2007 -31/3/2007) (I/RA/11291/06.090/MSA)~~* |
| 5.6 | Analysis of ambient conditions 21/09/05 - 31/3/2007 (I/RA/11291/06.091/MSA) |
| **Calibration** | |
| 6.1 | Winter Calibration (I/RA/11291/06.092/MSA) |
| 6.2 | Summer Calibration and Final Report (I/RA/11291/06.093/MSA) |
| **Through tide Measurements Winter 2006** | |
| 7.1 | 21/3 Scheldewacht – Deurganckdok – Salinity Distribution (I/RA/11291/06.094/MSA) |
| 7.2 | 22/3 Parel 2 – Deurganckdok (I/RA/11291/06.095/MSA) |
| 7.3 | 22/3 Laure Marie – Liefkenshoek (I/RA/11291/06.096/MSA) |
| 7.4 | 23/3 Parel 2 – Schelle (I/RA/11291/06.097/MSA) |
| 7.5 | 23/3 Laure Marie – Deurganckdok (I/RA/11291/06.098/MSA) |
| 7.6 | 23/3 Veremans Waarde (I/RA/11291/06.099/MSA) |
| **HCBS Near bed continuous monitoring (Frames)** | |
| 8.1 | Near bed continuous monitoring winter 2006 (I/RA/11291/06.100/MSA) |
| **INSSEV** | |
| 9 | Settling Velocity - INSSEV summer 2006 (I/RA/11291/06.102/MSA) |
| **Cohesive Sediment** | |

| | |
|---|---|
| 10 | Cohesive sediment properties summer 2006 (I/RA/11291/06.103/MSA) |
| **Through tide Measurements Summer 2006** | |
| 11.1 | Through Tide Measurement Sediview and Siltprofiler 27/9 Stream - Liefkenshoek (I/RA/11291/06.104/MSA) |
| 11.2 | Through Tide Measurement Sediview 27/9 Veremans - Raai K (I/RA/11291/06.105/MSA) |
| 11.3 | Through Tide Measurement Sediview and Siltprofiler 28/9 Stream - Raai K (I/RA/11291/06.106/MSA) |
| 11.4 | Through Tide Measurement Sediview 28/9 Veremans – Waarde (I/RA/11291/06.107/MSA) |
| 11.5 | Through Tide Measurements Sediview 28/9 Parel 2 - Schelle (I/RA/11291/06.108/MSA) |
| 11.6 | Through Tide measurement Longitudinal Salinity Distribution 26/9 Scheldewacht – Deurganckdok (I/RA/11291/06.161/MSA) |
| **Analysis** | |
| 12 | Report concerning the presence of HCBS layers in the Scheldt river (I/RA/11291/06.109/MSA) |

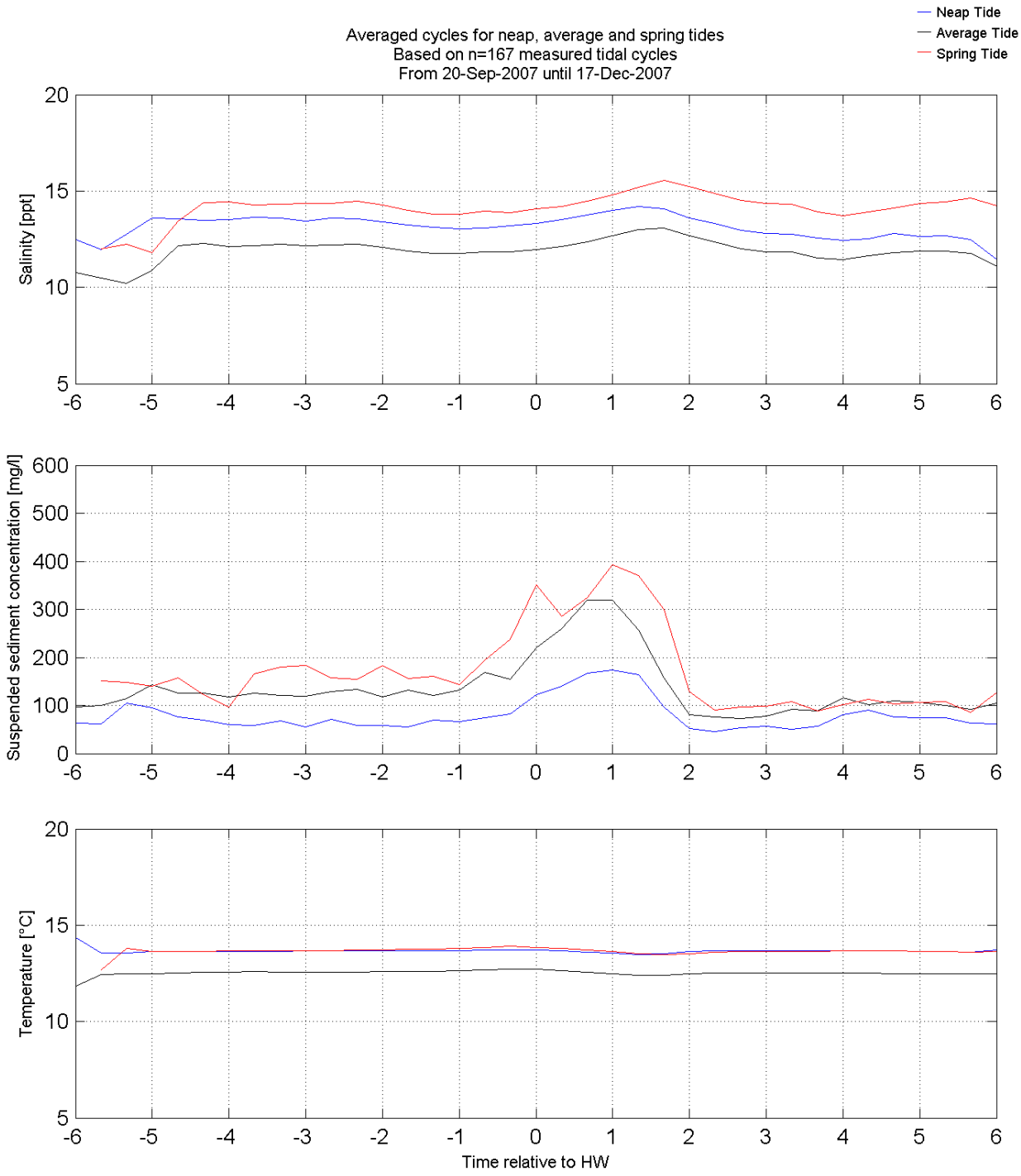
* Report 5.5 will be handled in report 3.1. Boundary conditions: Three monthly report 1/1/2007 – 31/03/2007 (I/RA/11283/06.127/MSA) including HCBS 2 report 5.5 (Deurganckdok).

# APPENDIX G. AVERAGE TIDAL CYCLES

# G.1 Local parameters

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: N-ENTRANCE bottom |




Absolute Parameters for averaged tidal cycle

Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

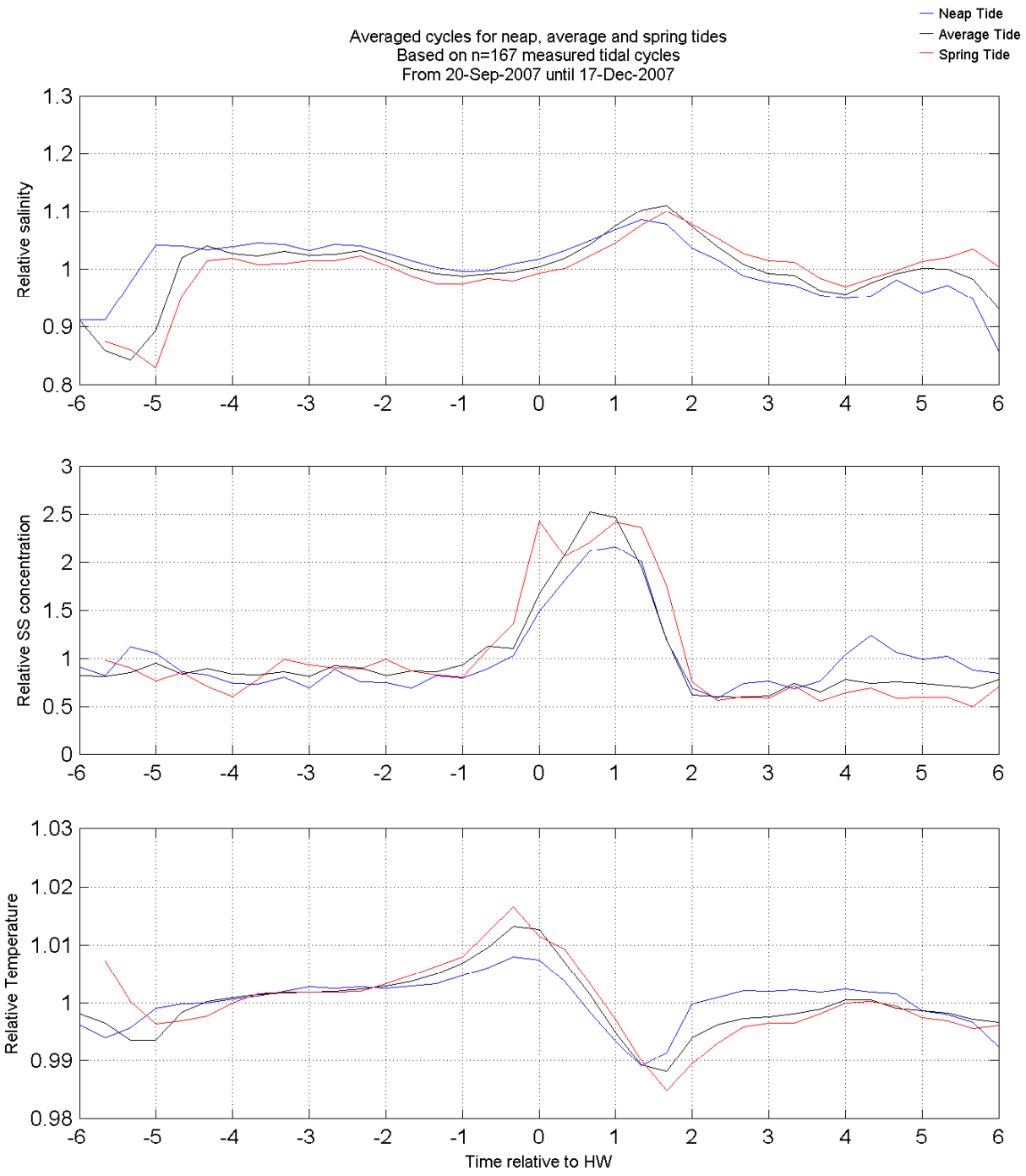
Autumn 2007

Equipment(s):

OBS-3A

Location:

N-ENTRANCE bottom




Relative Parameters for averaged tidal cycle

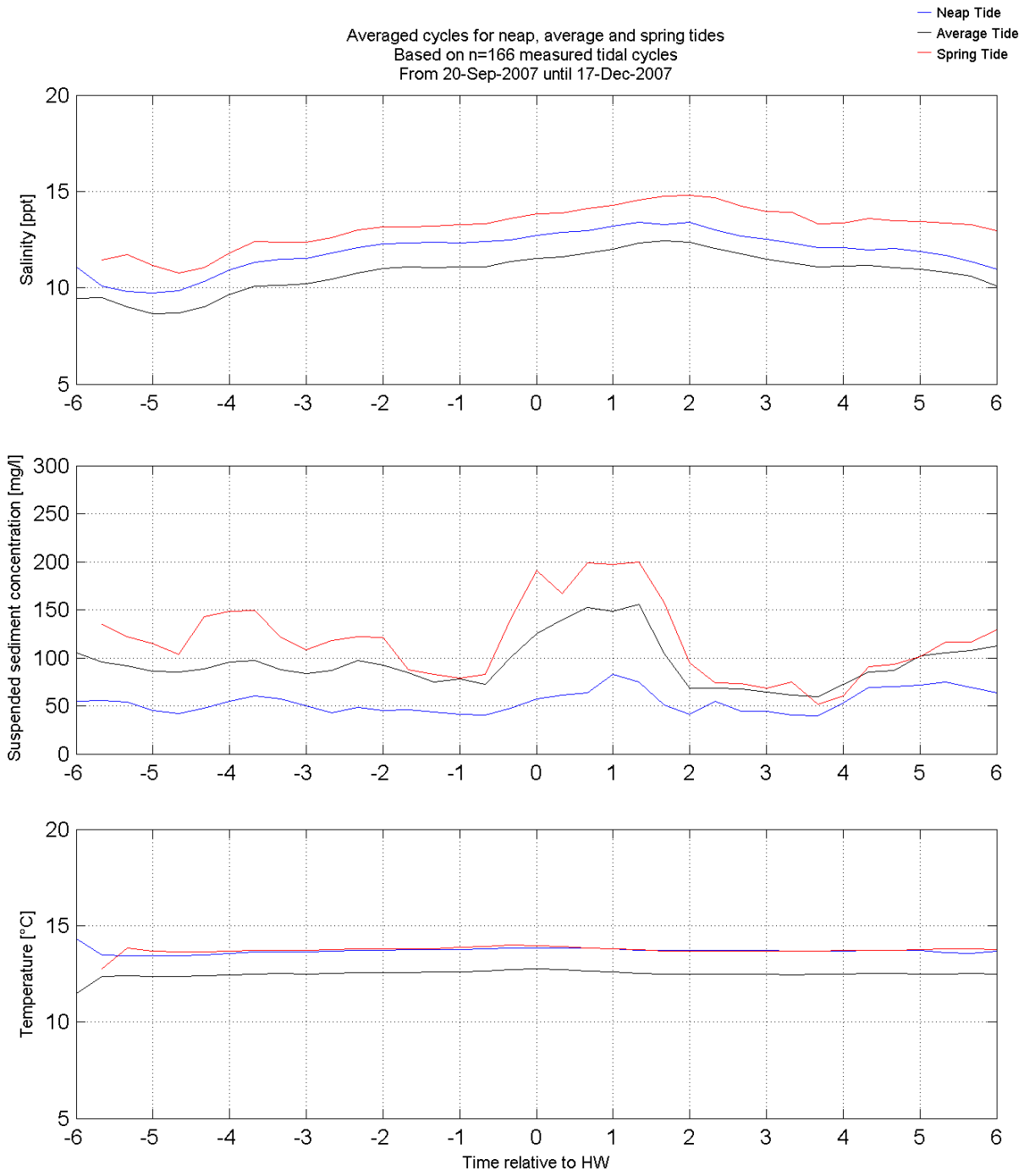
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: N-ENTRANCE top |




Absolute Parameters for averaged tidal cycle

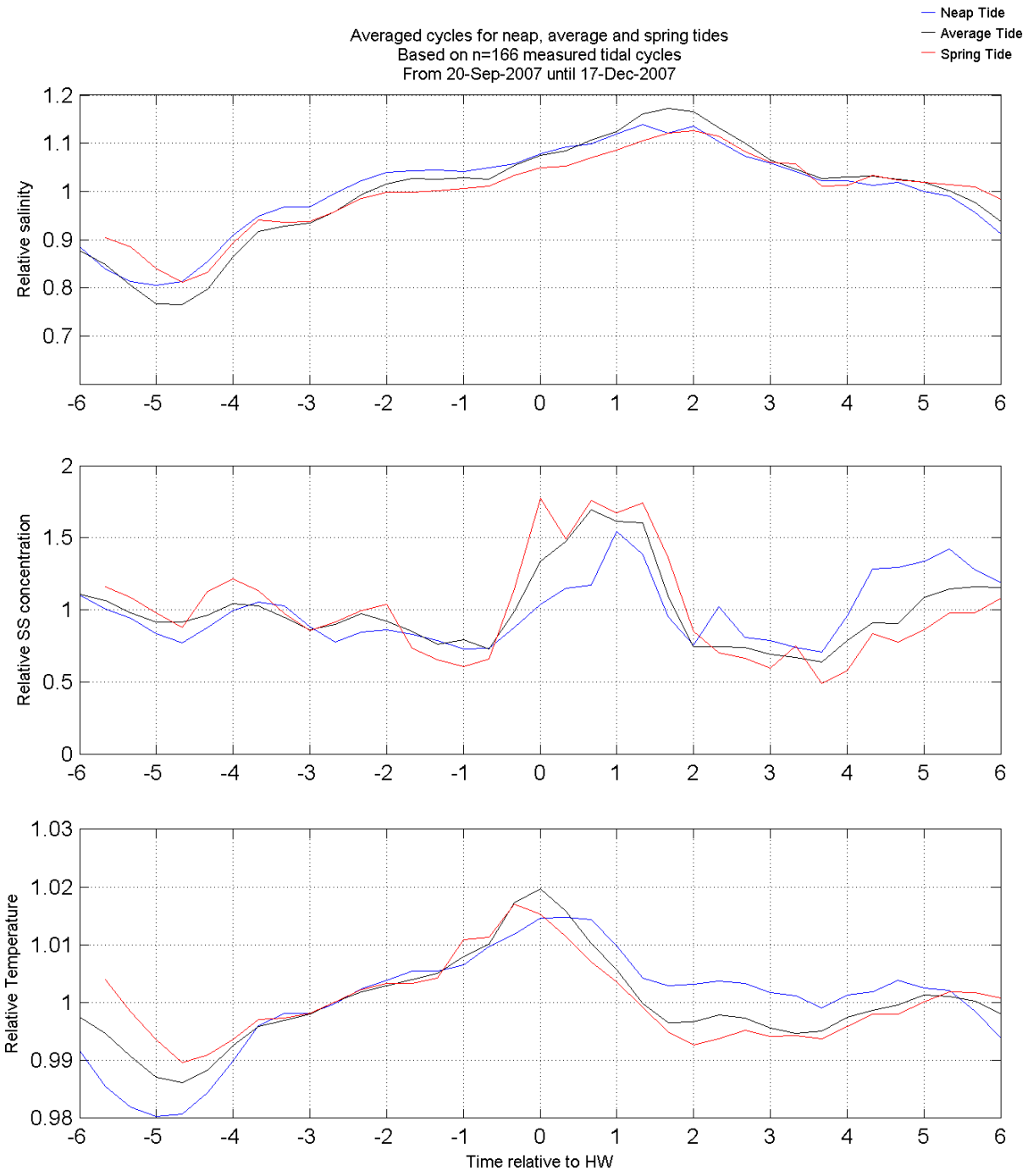
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: N-ENTRANCE top |




Relative Parameters for averaged tidal cycle

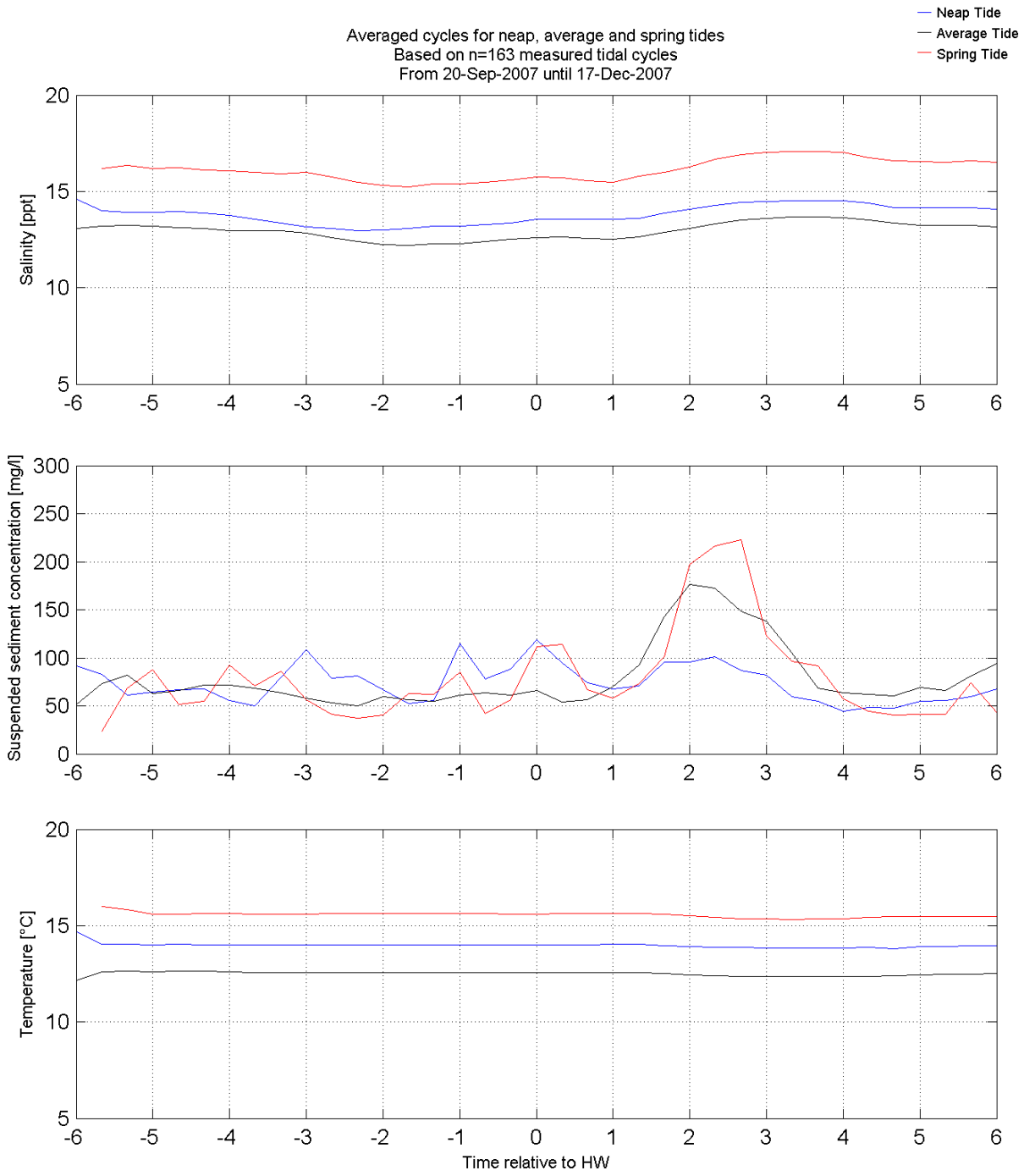
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: S-BACK bottom |




Absolute Parameters for averaged tidal cycle

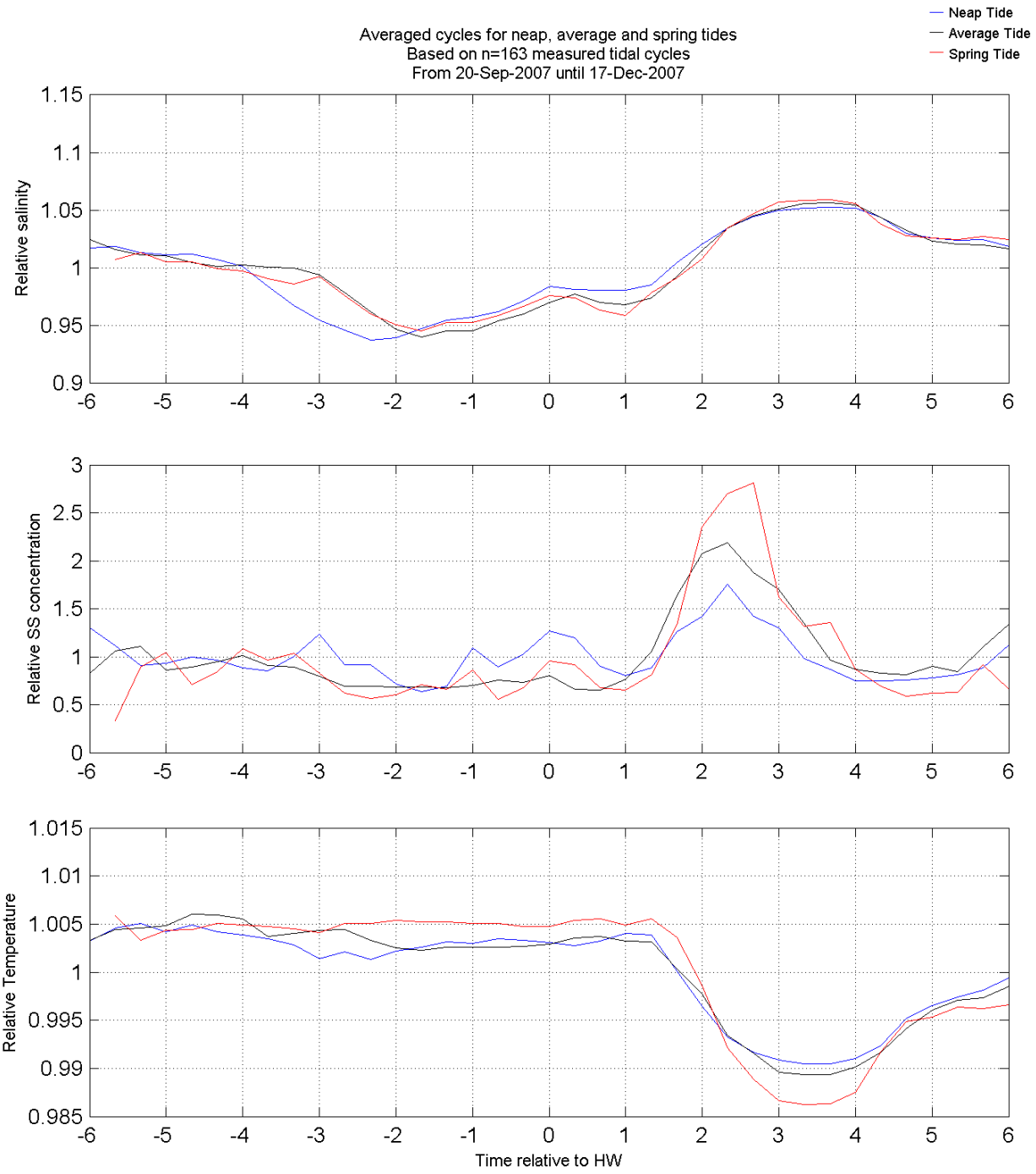
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: S-BACK bottom |




Relative Parameters for averaged tidal cycle

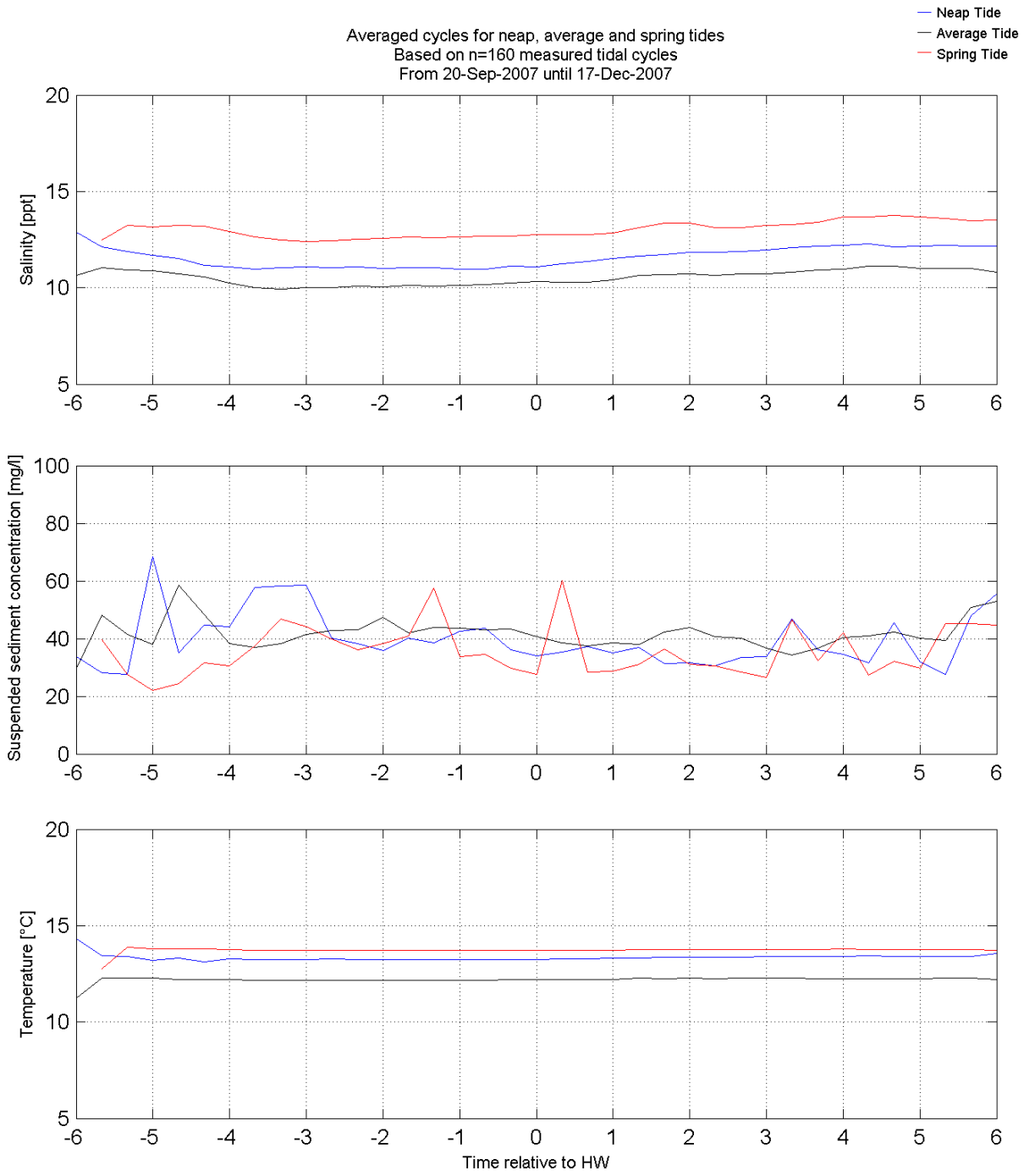
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: S-BACK top |




Absolute Parameters for averaged tidal cycle

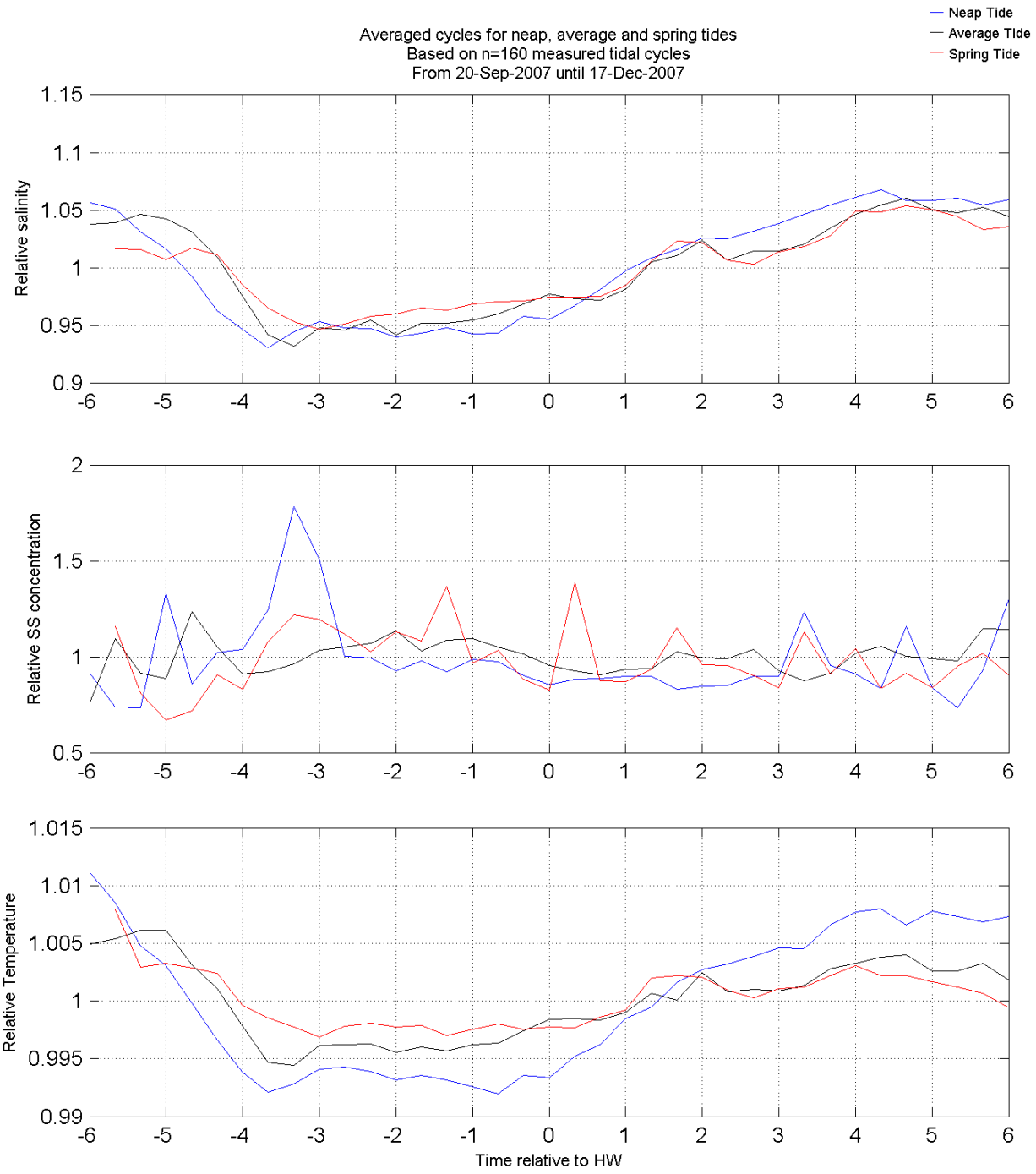
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: S-BACK top |




Relative Parameters for averaged tidal cycle

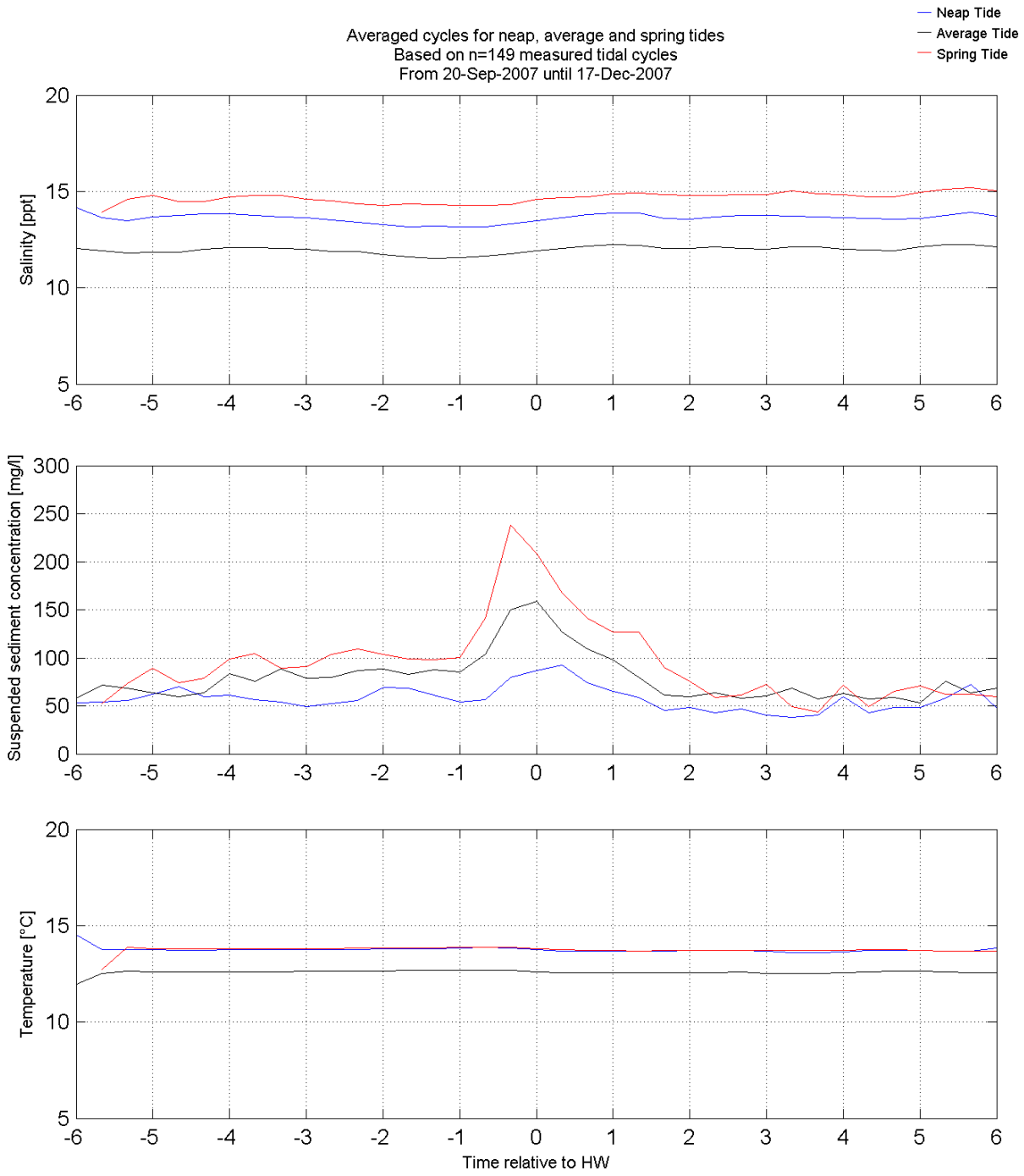
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: S-ENTRANCE bottom |




Absolute Parameters for averaged tidal cycle

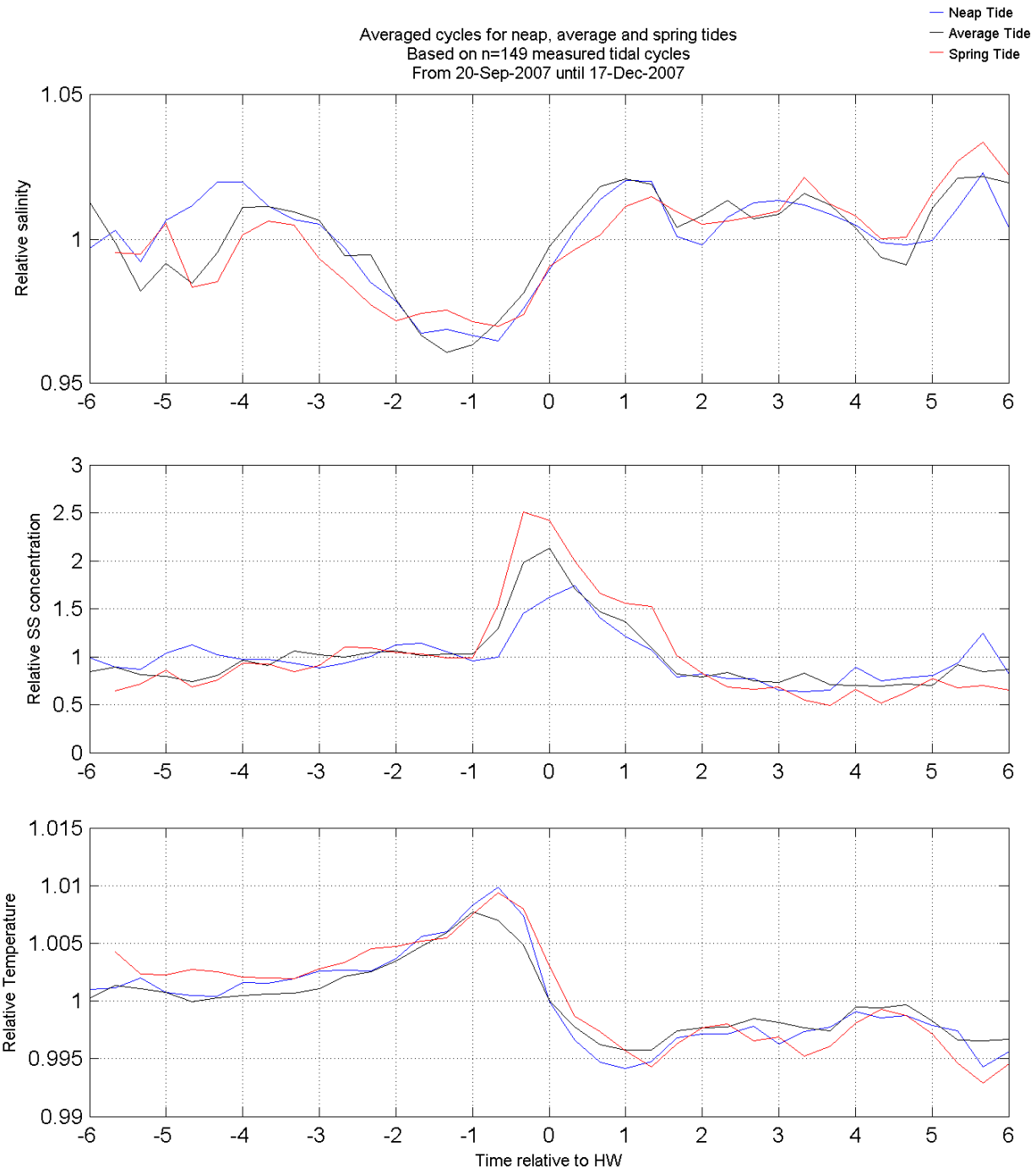
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: S-ENTRANCE bottom |




Relative Parameters for averaged tidal cycle

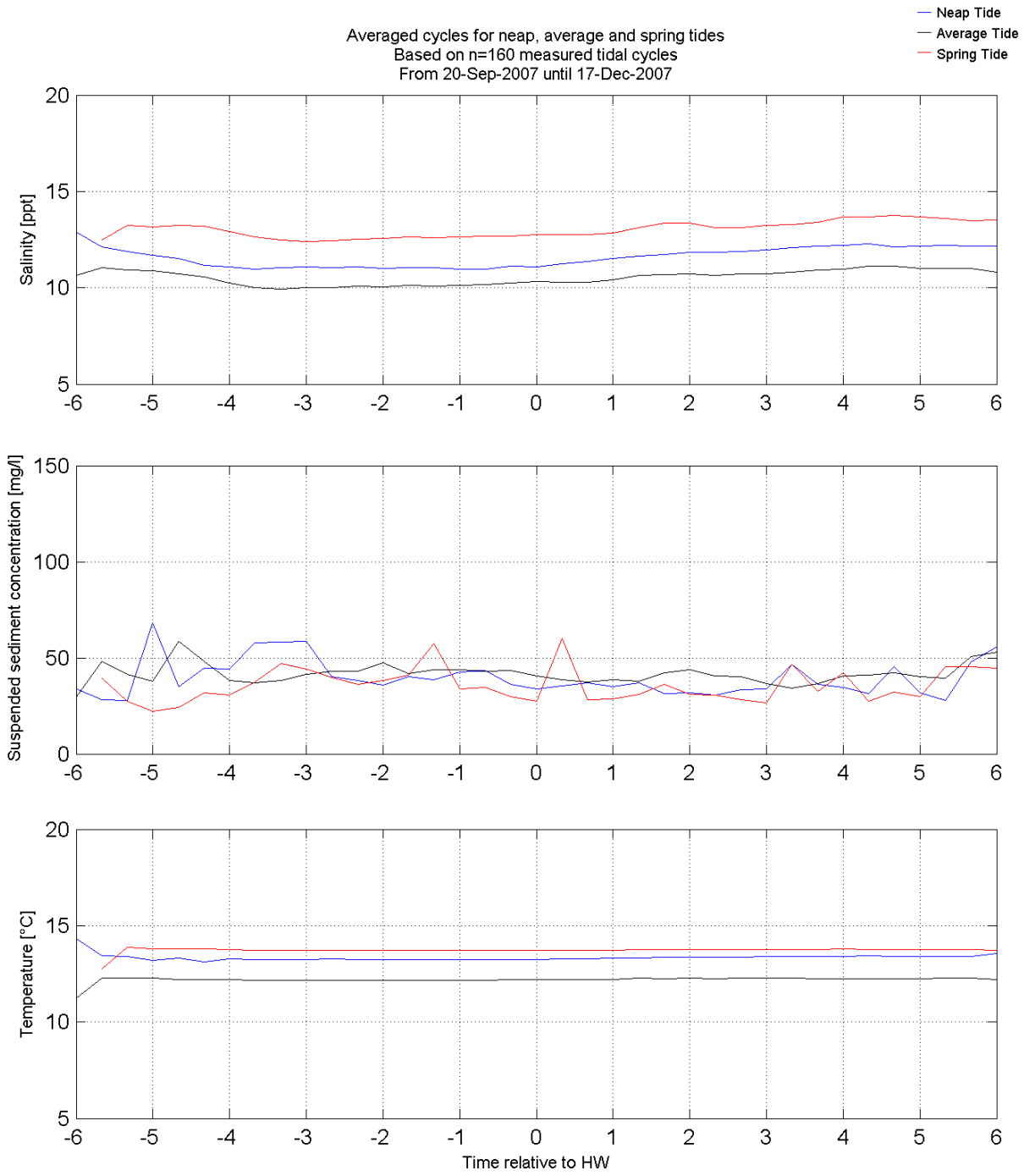
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: S-ENTRANCE top |




Absolute Parameters for averaged tidal cycle

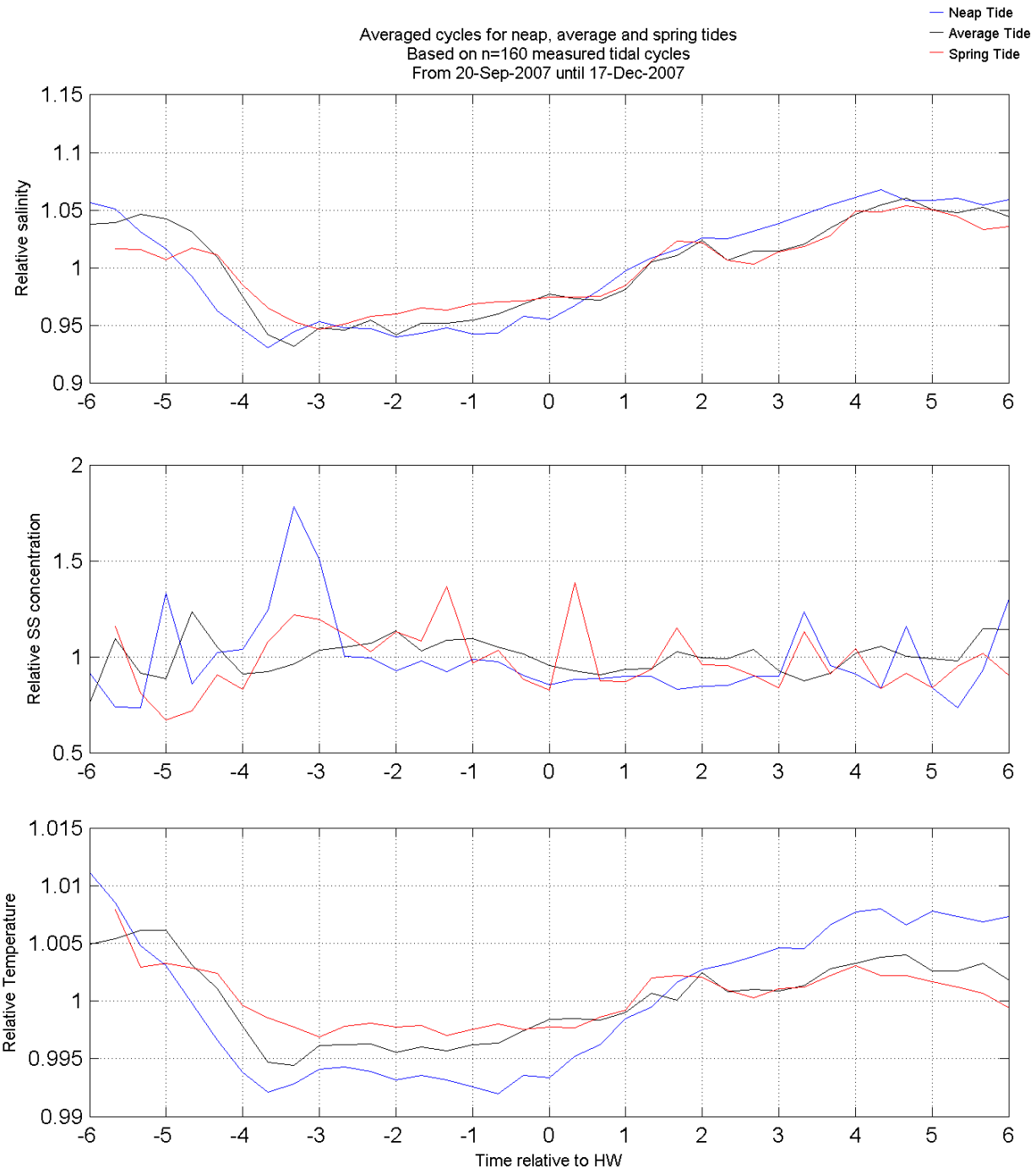
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS-3A |
| | Location: S-ENTRANCE top |




Relative Parameters for averaged tidal cycle

Data Processed by:

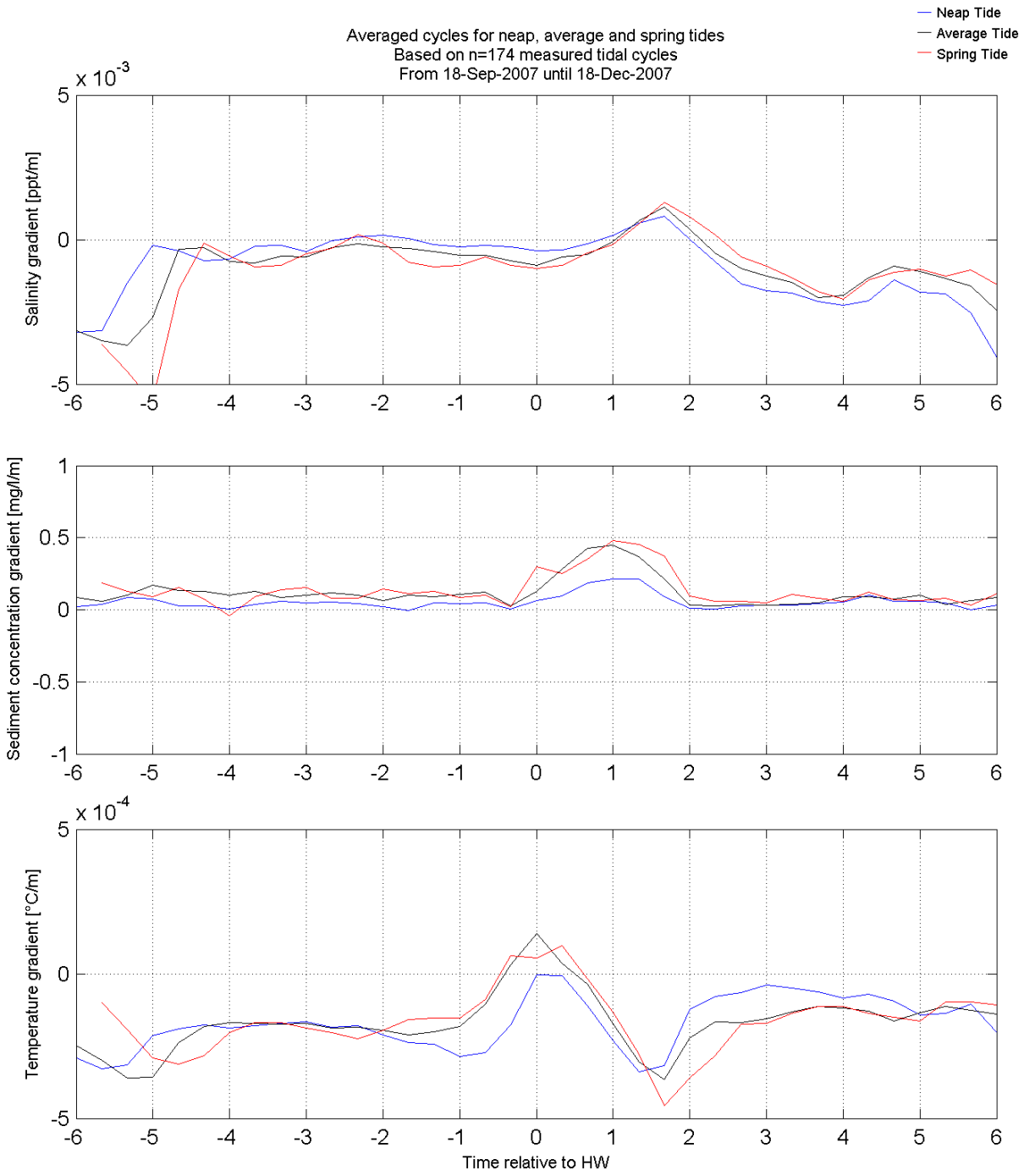
In association with :

I/RA/11283/07.093/MSA

## G.2 Along-dock, cross-dock and vertical gradients

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS 3A |
| | Location: DGD-entrance |




Horizontal gradient at -11.8m TAW =(N-ENTRANCE - S-ENTRANCE )/Δx

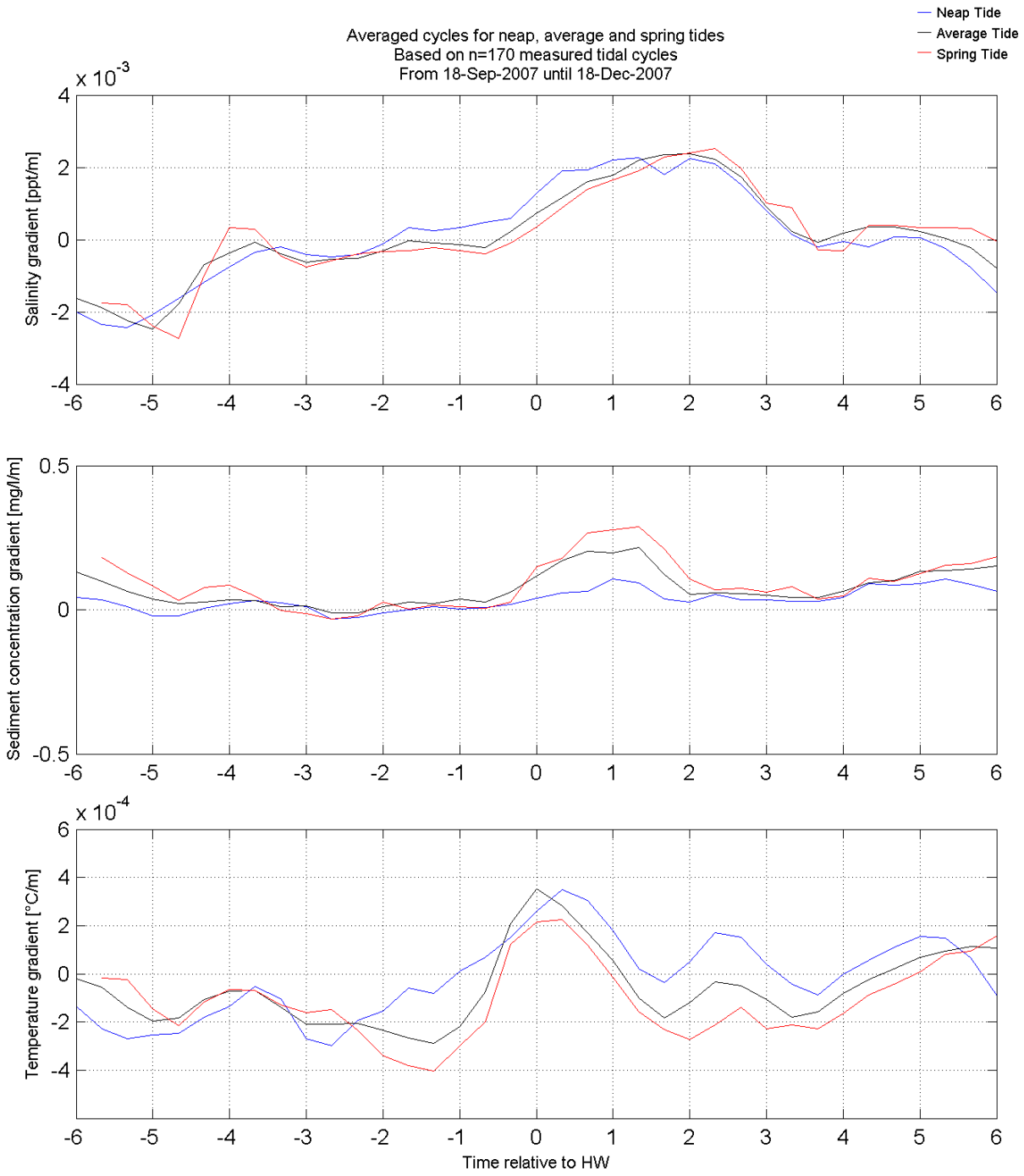
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS 3A |
| | Location: DGD-entrance |




Horizontal gradient at -2.8m TAW =(N-ENTRANCE - S-ENTRANCE )/Δx

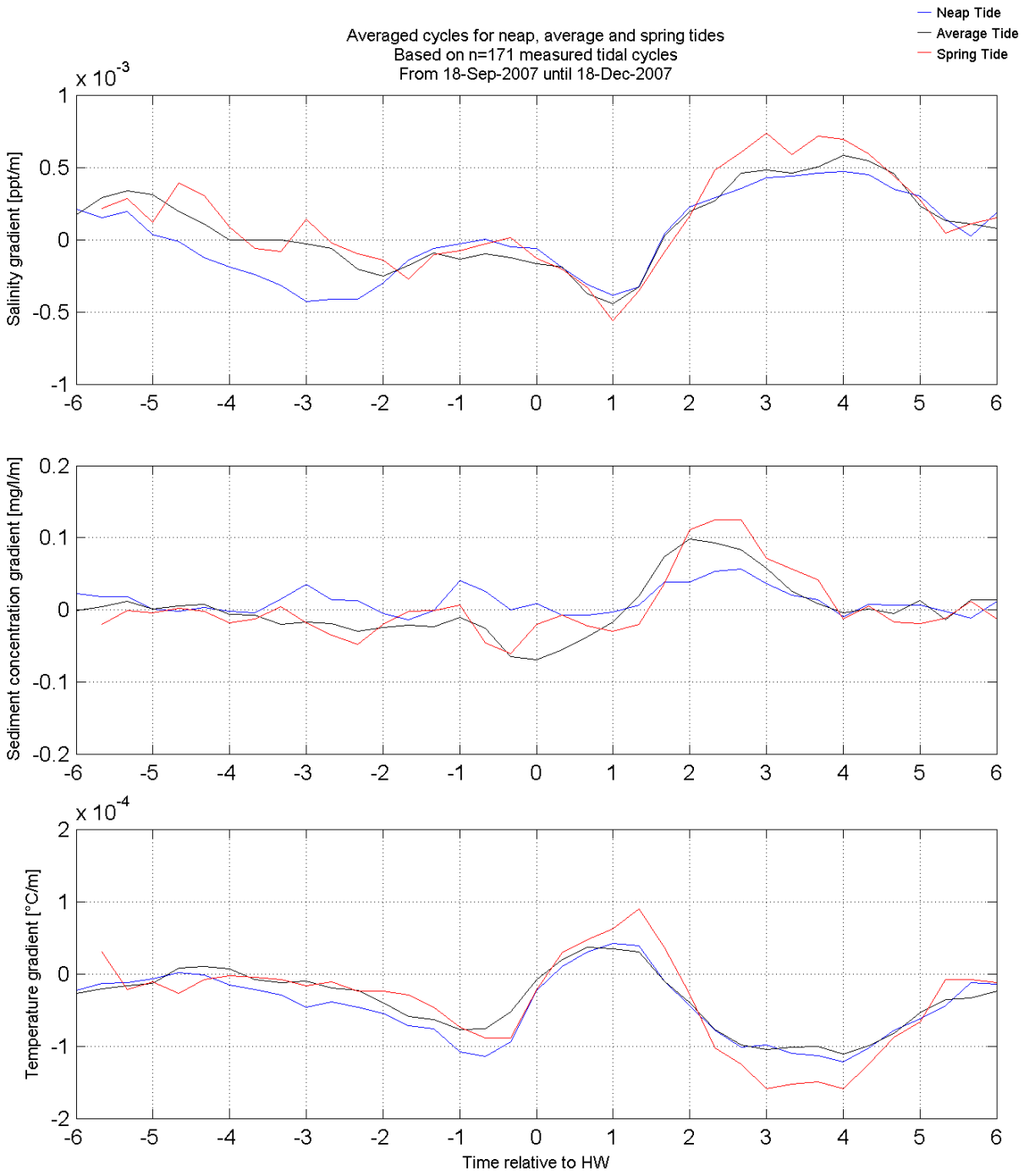
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS 3A |
| | Location: DGD-P&O (S) |




Horizontal gradient at -12 m TAW =(S-BACK - S-ENTRANCE )/Δx

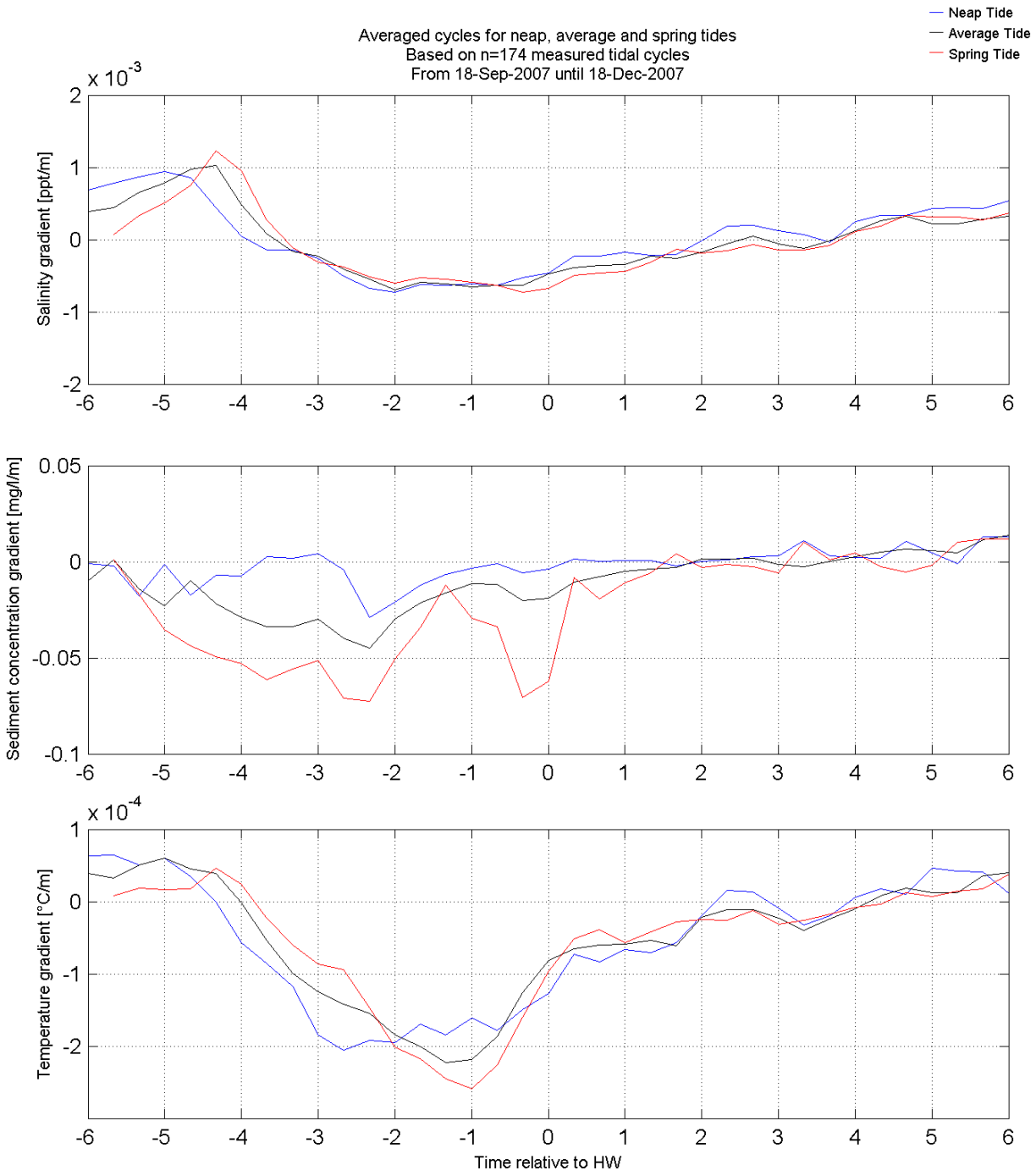
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS 3A |
| | Location: DGD-P&O (S) |




Horizontal gradient at -2.8 m TAW =(S-BACK - S-ENTRANCE )/Δx

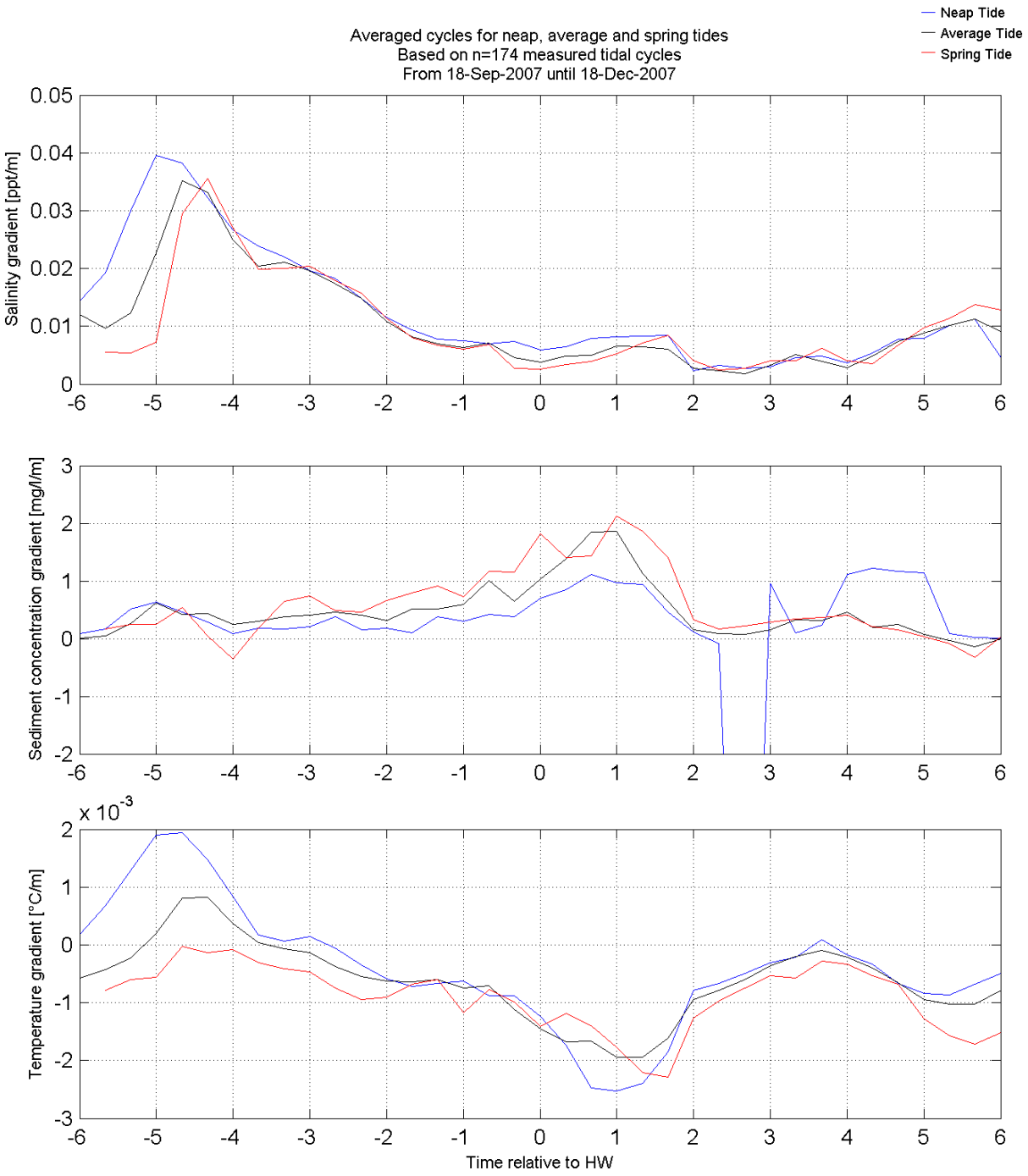
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS 3A |
| | Location: DGD-PSA (N-entrance) |




Vertical gradient at N-ENTRANCE =(data(-11.9m) - data(-2.5m))/Δz

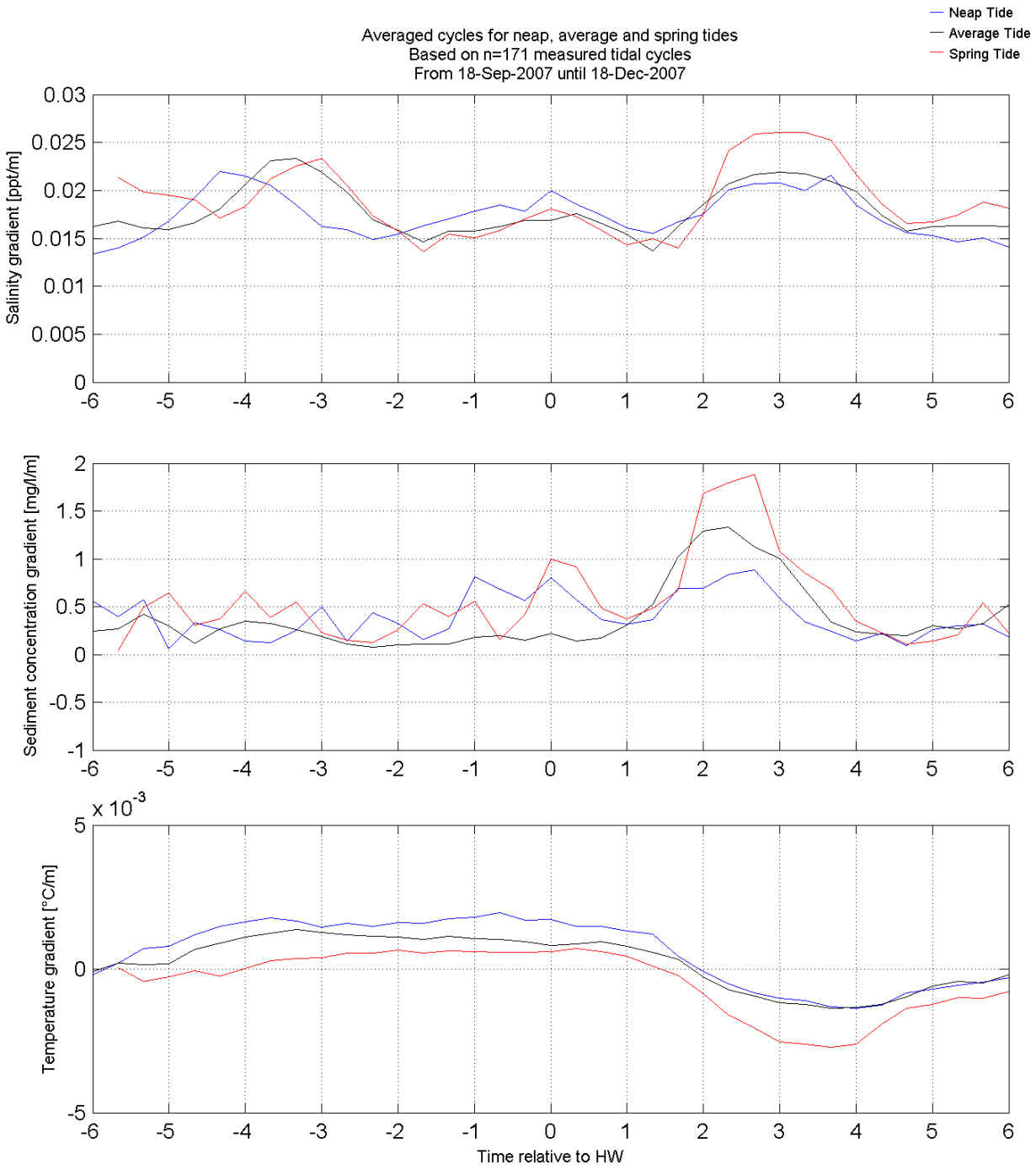
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS 3A |
| | Location: DGD-P&O1 (S-back) |




Vertical gradient at S-BACK =(data(-12.3m) - data(-2.7m))/Δz

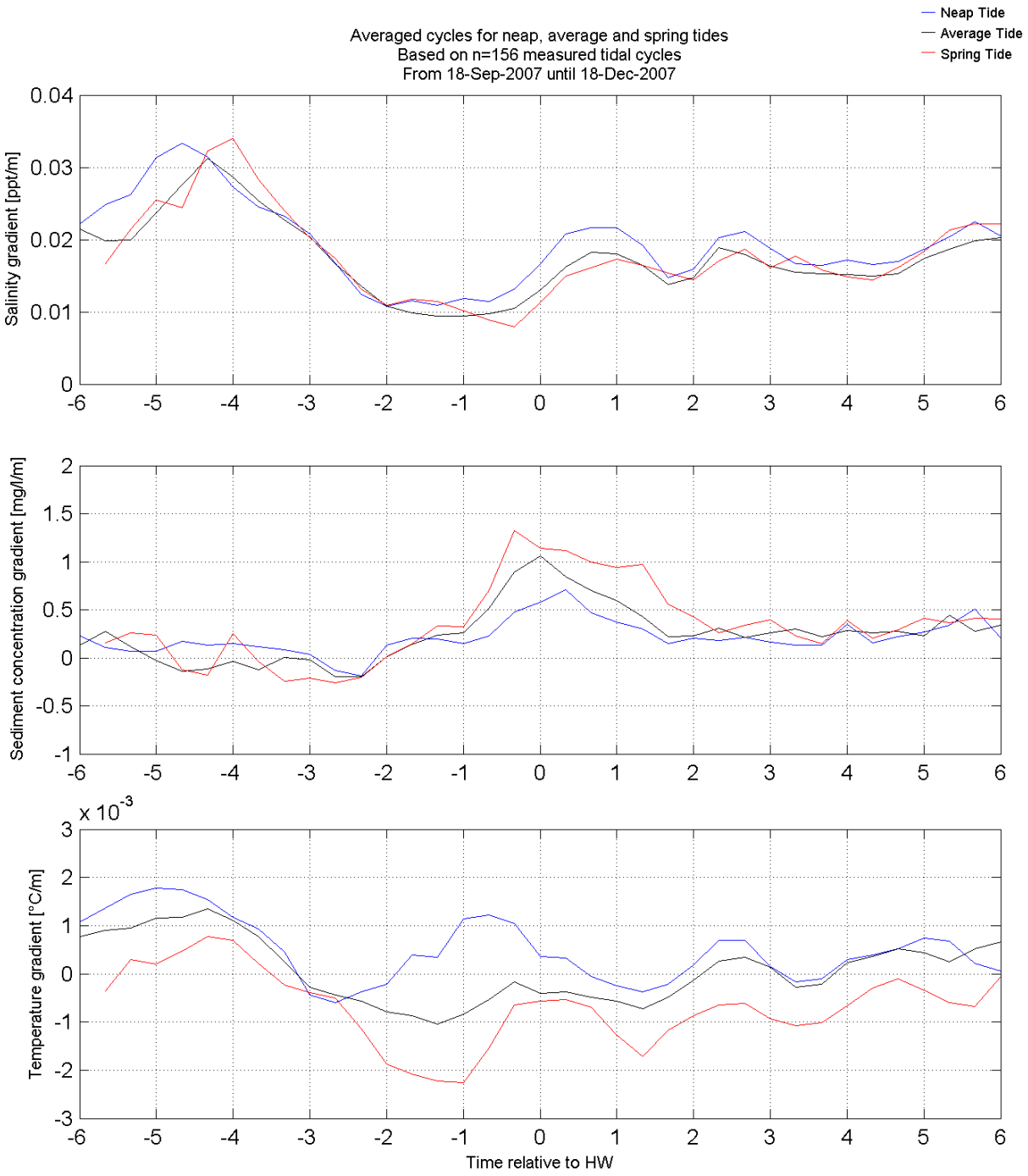
Data Processed by:

In association with :

I/RA/11283/07.093/MSA

# Long Term Monitoring Siltation Deurganckdok

| | |
|---|---|
| Autumn 2007 | Equipment(s): OBS 3A |
| | Location: DGD-P&O2 (S-entrance) |




Vertical gradient at S-ENTRANCE =(data(-11.7m) - data(-3m))/Δz

Data Processed by:

In association with :

I/RA/11283/07.093/MSA